FEEDSTUFFS®

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Milk Cows Being Fed Concentrates At Record Rate

WASHINGTON—Farmers are continuing to feed a lot of grain and other concentrates to their milk cows.

Grain and concentrate feeding was at a record high rate as milk cows were shifted to winter rations. The U.S. Department of Agriculture says that crop reporters fed their milking herds an average of 6.35 lb. of concentrates per head in the U.S. on Dec. 1—nearly 5% more than a year ago and 19% above the average for that date.

Generally, USDA said, ample supplies of feed grain and hay in heavy milk producing areas and favorable dairy product-feed price ratios were contributing to the high rate of concentrate feeding.

The amount of grain fed per milk cow was at a Dec. 1 record high in all sections of the country. The regional rates ranged from 7.8 lb. per head in the north Atlantic states to 5.4 lb. in the West. The proportion of crop reporters feeding some grain and concentrates to milk cows averaged 86% on Dec. 1.

The high rate of concentrate feeding is reflected in large milk production. Milk cows on farms produced a total of 8,757 million pounds of milk during November—1% above the previous record high for November last year.

Production per cow in crop reporters' herds averaged 17.39 lb. on Dec. 1—5% above the previous high for the date last year.

$150,000 LOSS

EVANSVILLE, IND.—A loss estimated at $150,000 was sustained when an elevator and its contents belonging to the McCarty Seed Co. here burned.

FEEDSTUFFS *Features This Week*

FEED PRODUCTION: Midwest Feed Production School reviews, beginning on **page 10**, tell of the new labor cost study which is available and give experts' advice on the various phases of feed mill operations.

SWINE NUTRITION: Basic information on mineral and amino acid requirements of swine is provided in an article by Dr. W. M. Beeson on **page 42.**

DAIRY FEEDING: Recent dairy nutrition research findings, including information on calf feeding and bloat control work, are discussed by Dr. Norman L. Jacobson on **page 64.**

RETAILING CHANGES: Important changes in feed retailing can be expected with the trend toward bigger, specialized farms. E. G. Cherbonnier outlines the challenges and opportunities on **page 20.**

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Lack of Funds Curbs New PL 480 Deals; Buying Backlog Substantial

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture has about exhausted the funds for financing exports of agricultural surpluses under Title I of Public Law 480.

Not more than $2 million remains to finance additional transactions, a sum which may be considered small in relationship to the huge amounts involved in this government-sponsored trade.

While this means that USDA will be able to issue only a few new procurement authorizations until Congress appropriates more money, it should be emphasized that authorizations already made have earmarked funds behind them and purchases will continue.

There is still a substantial amount of buying power in the authorizations that have already been issued under the program but which have not as yet been lifted.

At present negotiations are under way between the U.S. and Brazil for substantial amounts of wheat, lard and other commodities. USDA already has set aside money to back up this deal, and it will not be affected by absence of PL 480 money. Also, three additional but relatively small procurement authorizations for soybean oil for Latin American nations are expected to be issued against remaining funds.

Conservative opinion here indicates that additional PL 480 funds cannot be appropriated by Congress in less than six weeks after Congress convenes, and it is believed that filling of the financial vacuum in the PL 480 pipeline may take possibly three months.

The report that it was likely no additional procurement announcements for edible oils would be issued for some time was a blow to oil market bulls who had expected that new, heavy soybean oil export authorizations were about to be issued. Oil markets broke severely this week.

Size of U.S. Laying Flock To Show No Real Change

WASHINGTON—It's pretty definite that the nation's laying flock in the first part of 1957 will be about the same size as a year earlier.

Further confirmation of this outlook came this week as part of the U.S. Department of Agriculture's crop report. The report showed that the laying flock in November averaged about the same as a year ago; the number of layers on hand Dec. 1 also was about the same; and the number of potential layers (hens and pullets of laying age plus pullets not of laying age) on farms in the 1 was only 1% less than a year earlier.

The Dec. 1 number of potential layers was 365,190,000. Holdings were down somewhat in all parts of the country except the south central and south Atlantic regions. Declines from a year ago were 4% in the north Atlantic, 3% in the West, 2% in the east north central region and 1% in the west north central states.

The number of layers on hand Dec. 1 totaled 334 million, just about up to the total of 334.7 million a year earlier. The number of pullets not of laying age was about 31 million, compared with 35 million a year ago.

November Average

During November, the nation's laying flock averaged 331.6 million layers. Increases from last year of 2% in the south Atlantic and south central states were offset by decreases in the north Atlantic and western states of 1 and 3%, respectively. Numbers in the north central states were unchanged.

The fact that egg prices have been lower than a year ago reflects the increase in production with a higher rate of lay. Farm flocks laid 4,842 million eggs in November, a record high for the month. The rate of lay in November was 14.6 eggs per layer, compared with 14.1 last year. The rate of lay per layer on hand during the first 11 months of this year was 181 eggs, compared with 178 last year and the 10-year average of 159.

C. F. Deaver, Retired Peavey Official, Dies

MINNEAPOLIS—Charles F. Deaver, whose association with the grain trade extended over 72 years, died Dec. 12 in Minneapolis. He was an honorary director of F. H. Peavey & Co. and had been on the company's board of directors 50 years prior to his retirement in 1953.

Mr. Deaver joined the Peavey firm at Sioux City, Iowa, at the age of 20 when it was a partnership of Frank H. Peavey and E. C. Michener. After the Peavey company moved to Minneapolis in 1884 he became cashier, office manager and then secretary to Mr. Peavey. After Mr. Peavey's death, Mr. Deaver became secretary-treasurer, director, and in 1953, vice president, the position he held when he retired.

For more than half a century Mr. Deaver held memberships in the Minneapolis Club and the Minikahda Club, Minneapolis.

Corn Vote Points to Low Grain Prices

Referendum May Kill Soil Bank Efforts Unless Congress Acts

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The failure of commercial corn area farmers to approve the soil bank alternative in this week's referendum may have torpedoed the soil bank program, unless the new session of Congress acts to remedy the situation.

The soil bank base acreage plan for corn price support failed to win enough votes, leaving the corn support program under the old system of acreage allotments.

The not unexpected voting results among Corn Belt farmers now seem to forecast sharply lower prices for all the feed grains, with some competent observers outside the U.S. Department of Agriculture predicting dollar corn in the Corn Belt next year. Even more drastic secondary effects are seen for the wheat and cotton crop phase of the soil bank acreage reserve program.

These conclusions have driven

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Counties in Colorado, Kansas and Texas Added to Drouth Area

WASHINGTON—The U.S. Department of Agriculture has announced designation of additional counties or parts of counties in Texas, Colorado and Kansas as drouth disaster areas where eligible stockmen may participate in the feed grain and the hay and roughage programs designed to help stockmen maintain basic livestock herds.

Designated were:

Colorado (5)—Boulder, Jefferson, Teller, Saguache, Conejos.

Kansas (1)—Jackson (part).

Texas (3)—Cameron, Willacy, Kleburg (part).

States and counties or parts of counties currently under disaster designation include:

Feed Grain Program—562 counties or parts of counties in 12 states: Arizona, 14; Colorado, 30; Kansas, 89; Nebraska, 35; Nevada, 3; New Mexico, 31; Ohio, 8; Oklahoma, 77; South Dakota, 5; Texas, 239; Utah, 19; Wyoming, 12.

Soil Bank Acreage Reserve Grazing Program—700 counties or parts of counties in 12 states; Colorado, 22; Iowa, 31; Kansas, 84; Missouri, 93; Montana, 10; Nebraska, 59; New Mexico, 31; North Dakota, 4; Oklahoma, 77; South Dakota, 35; Texas, 233; Utah, 15.

Hay and Roughage Program—513 counties or parts of counties in 7 states; Colorado, 30; Kansas, 89; New Mexico, 31; Oklahoma, 77; South Dakota, 28; Texas, 239; Utah, 19.

Merry Christmas

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Helping Small Business

PROBABLY few other industries have as many companies who would qualify in the "small business" category as do the feed and grain industries. The small business man is the traditional symbol of individualism and our free enterprise system, and his welfare has come in for much attention, politically and otherwise, for many years.

Superficially, it would seem that devising aid to small businesses would not be difficult. In fact, such help becomes very difficult to put into effect when the problems are understood. The subject is a companion one in many ways to the equally well publicized preservation of the family farm. In either case, how are you going to do it without subsidizing inefficiency?

An excellent appraisal of the problems of small business and a possible approach to their solution is contained in the December letter of the First National City Bank of New York. The discussion is based on a report of a special cabinet committee on small business appointed by President Eisenhower.

Because so many feed and grain companies are small, we believe that a resume of the bank's comments will be of interest to our readers.

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IT is pointed out that the problem is complicated at the start because of the difficulty in defining exactly what is meant by small business. The Small Business Administration defines a small business as one independently owned and operated and not dominant in its field. The Defense Department, in parceling out defense contracts, sets 500 employes as the dividing line between large and small. SBA has been criticized by both Senate and House Small Business Committees for going along with the Pentagon's 500-worker figure when trying to get defense business for small manufacturers. The committees feel that a single dividing line for companies making anything from tanks to bobby pins is illogical and should be replaced by an industry-by-industry definition.

Most of the neighborhood stores and service establishments with which we deal every day are small businesses, representing the efforts of some individual to make his own way in the world. There are always people who do not care to work for others but prefer to risk their time, their ingenuity, and their savings in an enterprise of their own choosing.

Some of these small business men are qualified and experienced; others are not. Some small businesses are highly successful; others survive but return the proprietor less than he could earn in an outside job. A great many fail. During the postwar decade, 1946-55, an average of 292,000 firms went out of business each year and 430,000 changed hands. Yet each year, on the average, 393,000 new businesses were started—a remarkable tribute to the unflagging optimism and enterprise of the American people. As one commentator has put it: "The inalienable right to lose one's shirt is still highly cherished."

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THE problems of small business are complex and varied. Because of their interrelation it is hazardous to try to isolate them. A better approach is to examine the difficulties that crop up in those broad areas that greatly influence small firms' ability to get started and grow. These areas are big government, big labor, and big business.

As to the first—big government—one of the most pressing problems of small business is the heavy burden of federal taxes. These levies hit small business two ways: First, they infringe on ability to plow back profits into the business. Retained earnings are normally the principal source of money for the expansion of a successful business. The Horatio Alger story of the Ford Motor Co.—which, beginning with $28,000 in 1903, was worth nearly a billion dollars by 1930—could not be repeated under the present-day tax structure. Second, the small firm looking to outside sources finds wealthy backers few and far between. Their numbers have been decimated by the wealth-redistributing effects of 24 years of steeply progressive income and estate taxes.

Additional problems of small business stem from the fact that the federal government has become the largest single purchaser of goods and services produced by the private economy. A substantial part of these purchases consists of intricate military items which cannot be efficiently produced by small firms, except for parts on a subcontracting basis. Moreover, while the Defense Department spreads out its orders as far as possible, government orders are subject to annual appropriations and do not provide a secure basis for business growth.

Another headache in the big government area is the mountain of paper work required of a small business man, partly in connection with the work he is supposed to undertake as an uncompensated collector of taxes levied on employes and customers. At present an employer must file five reports a year with the Internal Revenue Service on the earnings of his employes. He must segregate funds for taxes, file reports, and hold his accounts open to audit.

All this, of course, is without even considering the myriad rules, regulations, and edicts promulgated by government, state and local as well as federal, which tell the business man everything from the kind of language he can use in advertising his product (Federal Trade Commission) and the working conditions he must provide if working on federal projects (Labor Department) to the kinds of ingredients he can put in his product (Food and Drug Administration) and the level of wages that must be paid (Labor Department).

Big labor often saddles the small business man with another set of problems. These involve the wage-price-cost squeeze.

The upward trend during recent years in the cost of doing business has particularly affected earnings of smaller companies. These companies often are marginal producers that are less able than larger companies to pass on increased costs in higher selling prices.

Small and medium-sized businesses during recent years have been forced,

(Continued on page 6)

A FEEDSTUFFS FORMULA FEEDS: HOW'S BUSINESS? FEATURE

Most areas reported steady formula feed sales this week, and the outlook was generally considered encouraging. There were exceptions, however, notably in the Southwest, where demand fell off considerably. Drouth feed orders are helping keep volume up farther to the south, however. Elsewhere, steady poultry feed demand and good movement of dairy and beef cattle feeds were holding tonnage up. Prices of ingredients changed very little this week, and the index of wholesale feedstuffs prices was off .1 point to 82.7 and the feed index was up .7 point to 76.7. (Ingredient details on pages 78-80.)

Southwest

Feed business in the Southwest this week seems to have slowed to a walk for most mixers. Some offer explanations for the draggy week, while others admit they are baffled. Dealers usually cut back their buying toward the end of the year to hold down inventories. However, this doesn't normally happen until closer to the holidays. The prices of eggs, broilers, cattle and past prices of hogs are also cited as possible reasons for caution on the part of producers. And the shortage of ready cash on the farms is said to have hurt mixers who don't have a low-cost line of feed.

Drouth cattle feed constitutes much of the business of some mixers. The broiler feed volume continues to hold about steady, and a slight pickup in laying mash is noted.

Factors mentioned that could improve the outlook include the colder weather and snow, good chick replacements and higher hog prices which will encourage producers for next spring. One mixer said he didn't look for business to get much better until about Feb. 1 when broilers will be eating more and turkeys will be well started.

Feed prices are steady to possibly slightly easier, with advances on some ingredients being offset by declines on others.

Most mills are running five days, but some have cut back a shift. The average seems to be a little less than two shifts. Because of the hand-to-mouth nature of the business, most mills do not have much of an order backlog to start on next week.

Texas feed business this week is very good, with drouth range cubes accounting for a large part of the volume. The extension of the federal drouth aid program from Dec. 31 to March 15 stimulated buying considerably as feeders started laying in supplies. The broiler price has improved slightly, and a small pickup in that type of feed is noted. The volume in other types of feed is holding about steady.

Weather got cold in Texas this week to discourage range feeding, but the cold winds brought no moisture, and the situation is rapidly approaching the critical stage again. No moisture has fallen in vast areas of the state since Nov. 2.

Because of the stepped up pace, mixers are running two shifts five to six days this week, with at least one mill planning 'round-the-clock operations seven days. Part of the extra running time is said to be in anticipation of the short Christmas week. Prices are unchanged.

Northwest

Formula feed demand was steady to somewhat lighter in the Northwest this week, although business generally was regarded as about comparable to the level of this time a year ago.

Instructions on previously-purchased dairy and cattle feeds are arriving in good volume, and mills as a consequence are holding to recent production schedules or increasing their output.

Sales of laying feeds are regarded as fair, and hog feeds, while improved from the demand of several weeks ago, are behind last year's tonnage. Sales of turkey feeds for breeder flocks are increasing, although the tonnage involved is not large.

Operations were on a one and a half shift to two shift basis, with some additional personnel on the job at mills which previously had lighter production schedules.

Northeast

Poultry growers received a little encouragement last week when the broiler market firmed a little, and the improvement may reflect later on in increased demand for broiler feeds. Broiler prices were unchanged to 2¢ higher in some areas. Egg prices also firmed a little.

Formula feed sales were fairly steady, but a pre-holiday dip is ex-

(Continued on page 82)

FLAVOR CORPORATION OF AMERICA

Seasons Greetings

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Thomas E. Hosty Nominated Chicago Exchange Head

CHICAGO—Thomas E. Hosty, senior partner of Sincere & Co., has been nominated as chairman of the board of directors of the Chicago Board of Trade, it has been announced by Robert C. Liebenow, president.

Mr. Hosty formerly served as a director of the exchange for nine years and was a former member of the executive committee for three years. He has been president of the Board of Trade Clearing Corp. the past five years.

James F. Wade, partner, Lamson Brothers & Co., is the nominee for vice chairman of the board. Mr. Wade is completing a term as second vice chairman and formerly served as a director for three years.

Henry M. Wolf, broker, has been nominated for the office of second vice chairman. Mr. Wolf has been a director the past six years and a member of the executive committee the past two years.

Julius Mayer, executive vice president of Continental Grain Co., is the retiring board chairman.

Seven men were nominated as candidates to fill five vacancies that will occur on the board of directors. They are William G. Catron, vice president of B. A. Eckhart Milling Co., and James P. Reichman, broker, incumbents; Clarence C. Fivian, vice president, Continental Grain Co.; Frank A. Jost, Jr., commodity manager, Dean Witter & Co.; Philip A. Rashman, partner, Max Nierman & Co.; William E. Ullman, broker; and Gardiner B. Van Ness, Jr., with Thomson & McKinnon.

Nominated to serve three-year terms as members of the nominating committee were Mr. Mayer, retiring chairman of the board and executive

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Daniel Belcher of Bemis Bro. Retires After 45 Years

MINNEAPOLIS — Daniel Belcher, senior vice president of Bemis Bro. Bag Co., is retiring from active duty after 45 years service. He is a graduate of Massachusetts Institute of Technology, and joined Bemis in 1911. His early activities were in efficiency engineering, time studies, personnel and employment phases of the business. He was elected a director at the age of 31, in 1917, and at the same time was named head of the Bemis engineering department in St. Louis. In 1922 Mr. Belcher moved to Minneapolis as manager of the Minneapolis bag factory. He was made a vice president in 1934.

His association with Minneapolis flour millers caused Mr. Belcher to become interested in the mechanical assistance that could be rendered Bemis' customers in economically

Daniel Belcher

packaging their products in bags and providing an attractive shelf package. Through his vision and technical knowledge, the Bemis "deltaseal" packaging machine was first manufactured in 1930. The machine and method is now the most widely used in closing small paper bags carrying a multitude of food products to American and foreign housewives. As these activities broadened, a division known as packaging service was formed in 1945 under Mr. Belcher's direction. In time, this division outgrew its manufacturing facilities at the Minneapolis bag factory and now operates its own plant in Northeast Minneapolis under the management of William J. Geimer.

Bemis' new physical research division, also in Northeast Minneapolis under the direction of Harold V. Kindseth, is another and more recent evidence of Mr. Belcher's leadership.

Near's MinRaltone Under New Ownership

NAPOLEON, OHIO—O. W. Meyer Laboratories has purchased Near's MinRaltone Products from Near's, Inc., Binghamton, N.Y., it was announced recently by O. W. Meyer. The acquisition includes the formulas and trademarks of Near's mineral products for feed mixing and direct feeding.

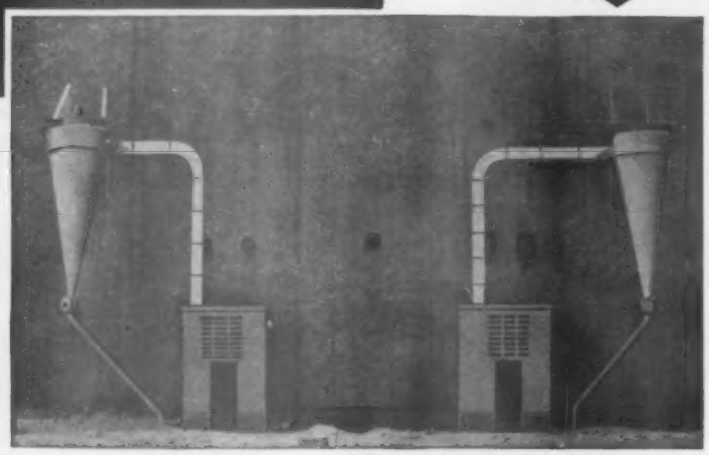
Near's MinRaltone Products, founded in 1899, will be manufactured at Napoleon, Ohio. Part of the Near's sales organization will be retained to serve dealers and distributors in the areas served in the past, according to Mr. Meyer.

Commodity Futures Statistics Released

WASHINGTON—The U.S. Department of Agriculture has released the 1955-56 issue of the statistical annual of the Commodity Exchange Authority showing the estimated value of futures trading under the Commodity Exchange Act at $40.1 billion in the year ended June 30, 1956. This is 2.8% above the 1954-55 value of $39.0 billion. The value of wheat futures trading on all markets is estimated at $8.6 billion.

HOW TO CONTROL DUST THE NEW, LOW-COST WAY

One of the World's Largest Grain Elevators—C-G Grain Co. 20-million bushel house near Wichita, Kansas—equipped with the Forster "FORNADO" Dust Control twin installation pictured below. A 450-foot dust-free tunnel.



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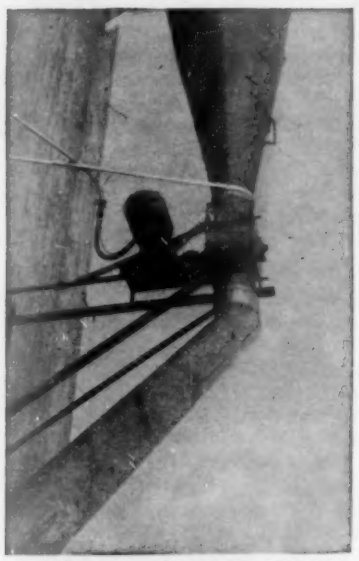

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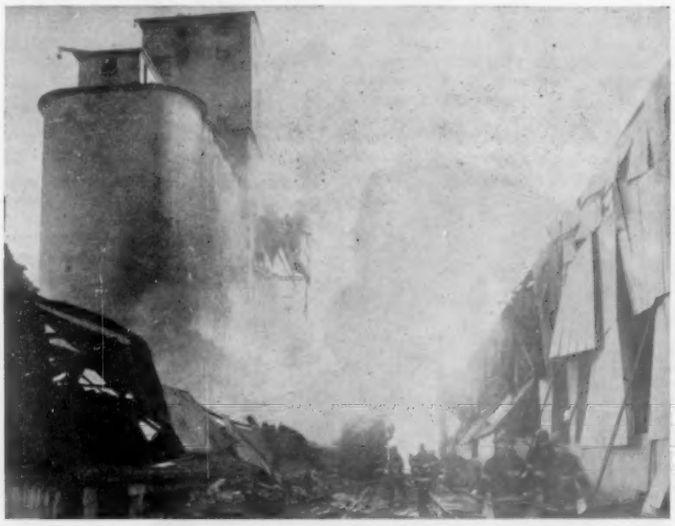

AFTER THE EXPLOSION—This was the sight following an explosion and five-alarm fire which caused an estimated $450,000 damage to Southland Feed Mills, Dallas. The blast and fire killed two workmen instantly and one of 15 injured workers died later in a Dallas hospital. Dallas fire department investigators said that they believe that grain dust caused the explosion but have been unable to determine what set off the condition. The feed firm's address is 5225 Maple St.

Thyroprotein Work Discussed

USDA Says Drug Has "Little Value" For Most Dairy Herds

WASHINGTON—The U.S. Department of Agriculture says that tests by USDA and Montana scientists indicate that the use of thyroprotein in feeds to stimulate milk production in dairy cows has "little practical value for most herds."

This research work, along with other findings, makes it appear that use of the drug has little place in average dairy farm operations, USDA researchers said in a recent news release. At the same time, they said, there is a possibility that thyroprotein might be used to advantage by large commercial dairymen.

The reported trials were conducted at the USDA research center at Beltsville, Md., and at Bozeman and Huntley, Mont.

Previous trials, according to USDA, had shown that thyroprotein increased milk production as much as 20% in some cows for short periods, but total milk production for the entire lactation was not increased when it was fed either for short periods or throughout the lactation.

USDA said that "the principal weakness in use of the drug, as shown by the recent tests, is that there is no way to avoid a sharp decline in milk production following removal of the drug." Gradual removal, previously believed to be a means of preventing the drop in production, was said to have been no better than abrupt removal or removal over varying lengths of time.

In the recently reported tests, there were said to have been widely varying responses to the drug among individual cows, which was interpreted to indicate unpredictable results in the average size herd. Profit above feed costs was increased for cows that gave the best responses, but it

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Paper-Calmenson Vice President Dies

MINNEAPOLIS—Leon Goldstein, vice president of Paper-Calmenson & Co., Minneapolis, died Dec. 7 at the age of 54.

Mr. Goldstein was vice president of the Oak Ridge Country Club, Minneapolis, and was active in several service and civic organizations. Surviving are his widow, Yvonne, and a son, Murray, both of Minneapolis.

USDA Conclusions On Thyroprotein Research Questioned

KANSAS CITY—U.S. Department of Agriculture conclusions on the value of thyroprotein for dairy cows are questioned by other well informed workers in this field, it is pointed out by Loren V. Burns, technical director of Agri-Tech, Inc., Kansas City.

"When the USDA work referred to in the news release is critically examined under the criteria now established for commercial application of thyroprotein, it is found that the USDA data are in substantial agreement with that obtained by other workers and with our findings in 'Operation Milkpail,'" Mr. Burns said.

"However, certain interpretations have been derived by USDA from its small group of cows which are not substantiated by other reputable workers in the field, nor by the results of large scale field tests under the proper conditions of application."

The "Operation Milkpail" referred to by Mr. Burns was a widespread field test directed by Agri-Tech. The test, involving thousands of cows in different areas, was conducted recently to study under field conditions the effects on milk and fat production obtained through the feeding of a commercial thyroprotein hormone supplement, produced by Cerophyl Laboratories, Inc., Kansas City. The product is designed to be fed as a supplement to a high quality dairy ration at certain stages of lactation.

Commenting on the recent USDA release, Mr. Burns went on to say:

"The USDA work has consistently shown increases in milk production during the periods when thyroprotein was properly used. For example, the same data which the release quotes showed increases of 21.9% and 18.1% in level of milk production and an average fat increase of 0.5% (Journal of Dairy Science 37: 877 [1954]). However, these increases were offset in the USDA work by a withdrawal technique which results in loss of production, a technique which has now been proven wrong and is not currently used in commercial applications. Other workers in the field such as Swanson (Journal of Dairy Science 37:1212 [1954]), Turner (private communication) and Blaxter (Journal of Animal Science 8:307 [1949]) have shown repeatedly

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HELPING SMALL BUSINESS

(Continued from page 2)

because of "patterns" of higher wage rates and other benefits agreed on by industry leaders, to accept similar terms which many of them could not afford. The result has been a rise in their costs beyond what could be recouped by higher selling prices and a squeeze on often narrow profit margins.

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THE third broad area influencing small business' ability to grow and prosper is big business. There is no doubt that a small firm suffers some natural disadvantages such as lack of ability to command quantity discounts and to gain the economies that flow from large-scale production and shipment. Another disadvantage frequently cited of small business vis-a-vis big business is availability of credit.

One trouble is that small business men often do not distinguish between lack of credit and lack of capital. There is no doubt that big, established companies have readier access to the market for long-term capital funds than do new, little firms. Short and intermediate term credit from banks, on the other hand, is extended to both big and small businesses—if the companies are creditworthy and the purpose of the loan is sound. Most banks are themselves small businesses and can lend only in a small way.

Big companies clearly have an edge over little firms in other ways. The pace of technological change has been accelerating. Large, well-financed firms can undertake costly research and development programs to keep pace with industrial innovation.

On the other hand, the small business has some advantages of its own over the corporate giant. Because it is in closer touch with customers, employes, and supply sources, for instance, a small business can often do more of a custom job, attracting customers on the basis of specialty products, quality, and personal services, rather than price. A small firm is usually more flexible and can switch production more readily to meet changing market conditions.

The many problems of small business in dealing with big government, big labor, and big business are obviously complex. President Eisenhower believes, however, that some of them can be at least reduced with help from the government. To accomplish this he has promised to present to the congress a legislative program based on the following cabinet committee recommendations: cut to 20% the present 30% federal taxes on a corporation's first $25,000 of income; permit accelerated depreciation on used machinery purchases up to $50,000 a year; give taxpayers the option of paying death taxes over a period of up to 10 years in cases where the estate consists largely of investments in closely-held businesses; and allow corporations with, say, 10 or fewer stockholders the option of being taxed as if they were partnerships, thus enabling them to avoid being taxed twice on their earnings. The cabinet committee estimated these tax measures would result in a revenue loss to the government of $600 million in the first year.

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THESE actions and recommendations, salutary as they might be, are no cure for all the ills of small business—as the President and his cabinet committee are well aware. There are some problems that can't be solved simply by issuing a federal edict or by passing more laws. How can you legislate away the tremendous demands placed on the managerial know-how of the small business man today? A small business man often has to be able to sell, run a production line, negotiate with a union, handle advertising and promotion, keep the books, pay all kinds of taxes, keep solvent, and stay abreast of the endless requirements of federal, state, and local government rules and regulations.

Doing all this requires extraordinary ability. It is a rare man or woman who possesses the full collection of talents.

In searching for solutions to small business problems it is well to keep in mind that there are limits on what can be accomplished. Programs that would help some businesses would be of no benefit to others. It is difficult, for instance, to develop remedies that will help a small retailer get started and grow, and, at the same time, will prove beneficial to a small steel company. Aid to an inefficient business man who does not know his costs may damage a more deserving competitor.

In this country, any man who thinks he can build a better mousetrap is free to do so—regardless of his qualifications for the job. This freedom, however dearly it is cherished, cannot carry with it any guarantee that each business will succeed.

Government efforts to lighten the tax load, cut down required paper work, and eliminate competition with private firms will help clear away some of the obstacles in the path of small business. In some cases, however, the very problems the government is trying to solve can be directly traced to the government itself. Taxes provide a good example. Money for expansion is one of the biggest headaches of small business. If the government would curtail its spending and range of activities and reduce tax rates, small business would get a real lift. Appropriating tax revenues to lend to small business is no answer. Government loans make small business the dependent of government, and no longer an expression of the self-reliance of an enterprising citizen exploiting opportunity in a free and competitive society.

Probably the most important contribution the government can make to the economic health of small business, as recognized by the cabinet committee, is to pursue monetary, fiscal, and housekeeping policies that foster sustained expansion in over-all business activity without contributing to price inflation. All sizes of business would benefit from such policies. The importance of this was demonstrated in 1955. There was a net increase of 63,000 business concerns—more than in any year since 1948, which marked the end of a period of rapid growth to make up for reductions during World War II. It reflected last year's record economic activity which followed tax reductions and was achieved with relative price stability.

Small business serves as a dynamic influence in our free enterprise system. The country needs little as well as big business. To the extent that sound steps can be taken to strengthen the development of small business, the interests of the whole country will be served.

SELF-SERVICE—A supermarket principle of letting the customer help himself to the merchandise is embodied in this new bulk feed installation of the Osborne-McMillan Elevator Co. at Alexandria, Minn. Customers who want to save delivery costs by hauling their bulk feed in their own trucks or trailers can load up themselves at these self-service tanks, weighing up before and after loading. Types of Jim Farmwell brand of feeds stocked include a hog ration, two laying rations and two dairy feeds. The company's bulk truck is used to convey the feed from the mill across the loading area to the tanks. Jack Conlee, manager of the company's feed division at its Minneapolis headquarters, said that similar installations are being considered for some other plant locations.

Grain Firm Becomes Louis Dreyfus Corp.

NEW YORK—Leval & Co. will be known as the Louis Dreyfus Corp. beginning Jan. 1, it is announced by Jacques Kayaloff, president.

At about the same time, the company's main office in New York will be moved from the Produce Exchange Bldg. at 2 Broadway to 26 Broadway.

"The change of the name involves no alteration in management or structure of the company and operations will continue as before", Mr. Kayaloff said.

Originally known as Louis Dreyfus & Co., the firm became an American corporation under the name of Leval & Co., Inc., independent of the French parent organization, at the time of the German invasion of France in 1940.

The return to the Louis Dreyfus name again directly identifies the American company with the world wide group of grain shipping companies, although the Louis Dreyfus Corp. will function as an independent American company.

The Louis Dreyfus Corp. will maintain offices in Baltimore, Chicago, Minneapolis, Kansas City, Portland, Washington, Winnipeg and Vancouver.

Shipping interests offiliated with the world-wide organization own a fleet of about 30 dry cargo vessels.

Directors and officers of Leval & Co., Inc., will continue unchanged with Fernand Leval, chairman, and Leopold Stern, vice chairman of the board of the Louis Dreyfus Corp.

Spencer Kellogg Considers Expansion

BUFFALO — Spencer Kellogg & Sons, Inc., is looking at some other companies with the hope of taking them over and expanding, stockholders were told at their annual meeting here Dec. 10 by Howard Kellogg, Jr., president. None of the companies were identified.

Mr. Kellogg said the firm's earnings picture appears brighter than last year. The company's new laboratory in suburban Cheektowaga, N.Y., is experimenting with several new products, he said. Stockholders reelected all the directors.

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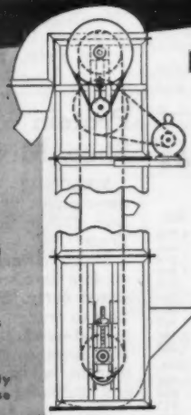

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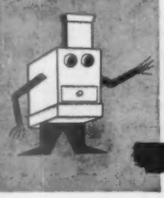

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Pfizer Conducts Medicated Feed Research Seminar

MINNEAPOLIS — Latest results from research in the uses of antibiotics in animal feeds were revealed at a medicated feeds research seminar here Dec. 11. An audience of about 75 officials and nutritionists from feed manufacturing firms in the Minneapolis-St. Paul area attended the session sponsored by Chas. Pfizer and Co.'s agricultural research department. It was held at the Radisson Hotel.

A highlight of the presentations at the meeting was the discussion of a new use of Terramycin-supplemented feeds, for controlling leptospirosis in swine. The antibiotic's ability to control this disease under practical farm conditions, the claim for which has just received federal approval, was described as a distinct advancement.

The seminar was a capsule-type presentation lasting just over two hours and was the first of such sessions planned by the company's agricultural research group. In addition to problems and means of control of leptospirosis, other subjects included in the program with special emphasis on the uses of high level antibiotic supplementation included methods to increase egg production and new means of combatting shipping fever.

The research team conducting the seminar was headed by the firm's agricultural research director, Dr. H. G. Luther. Others were Drs. J. H. Hare, G. A. Donovan and R. P. Soule, nutritionists; Dr. D. F. Chichester, technical editor, and Dr. G. E. Hawley, veterinarian.

As related by Pfizer researchers, the new-found methods of controlling leptospirosis consist of using feeds supplemented with Terramycin at 500 grams per ton. Evidence collected at the company's agricultural research center in Terre Haute, Ind., and in cooperation with farmers in the middle west, indicates that this control measure will go a long way toward eradicating this disease which has had such vast economic consequences for the American farmer, company spokesmen said. It is estimated that last year's loss to the nation's swine production resulting from leptospirosis approximated $100 million.

Research into control of shipping fever complex in cattle and sheep revealed equally notable results, Dr. Hawley said. Data collected during the past few years from trials involving nearly 40,000 animals indicates that success in control of the diseases involved can be attained by Terramycin-supplemented feeds fed in pelleted form at two pounds per head per day, it was stated.

In the poultry field staff research men reviewed latest advances in poultry nutrition and in increasing egg production, stating that the use of high level antibiotic feeds is resulting in phenomenal results in egg production rise.

Following the formal program, a social hour and dinner were enjoyed by the guests. Robert J. McLeod, Pfizer representative from Minneapolis, was assisted by several other company representatives as host for the guests.

Representative Named By Taste Engineering

CHICAGO — The feed ingredient distributing firm of Pless & Sheahan, Memphis, has been appointed sales representative for Taste Engineering, Inc., according to Paul Q. Card, president of the firm. Pless & Sheahan will handle the Tastelation line of feed flavors throughout Tennessee, Arkansas, Alabama, Mississippi, Louisiana and Georgia.

Richard H. Newsome

NEW OFFICE—The Eugene L. Selders Co., Kansas City, has opened a Minneapolis office with Richard H. Newsome as manager. The office is at 428 Flour Exchange Bldg., and the telephone number assigned is Federal 9-0681. The Minneapolis office will handle all feed ingredients on a brokerage basis. Mr. Newsome was for 14 years associated with the Newsome Commission Co. in Minneapolis. He is a graduate of Culver Military Academy and attended the University of Pennsylvania.

Bremco Alfalfa Mills Modernizes Facilities

NEW BREMEN, OHIO — A. H. Poppe, president, Bremco Alfalfa Mills, Inc., announces that portions of an extensive plant modernization program have been completed on the alfalfa processing facilities near here.

The company has installed pelleting equipment and now is in position to provide dehydrated alfalfa pellets and crumbles, as well as sun-cured pellets and crumbles.

Elevator legs and bins have been installed for more efficient operation, and the plant is now equipped to load cars and trucks in either bulk or bagged form. One truck has been equipped for bulk delivery of alfalfa products.

Company plans include the installation next spring of storage tanks for bulk pellets under gas storage. The elevator leg is already in for those tanks along with the building housing the gas generator.

The modernization program is expected to be completed about the middle of 1957 and will include automatic scales, belt conveyors, a truck scale and remodeled office facilities.

200 Hear Nutrition Reports At North Carolina Conference

RALEIGH, N.C.—"Feed manufacturers have done an outstanding job," L. Y. Ballentine, North Carolina commissioner of agriculture, stated as he opened the eleventh annual Animal Nutrition Conference, held Dec. 6-7 in the College Union Building at North Carolina State College.

Mr. Ballentine urged the approximately 200 feed men attending the program to continue their good work.

Representatives from 18 different states were attracted to the conference, sponsored by N.C. State College, the N.C. Feed Manufacturers Assn., and the N.C. Department of Agriculture.

Presiding over the opening session was John L. Reitzel, assistant commissioner of agriculture. Mr. Reitzel introduced Commissioner Ballentine, who, in turn, welcomed those attending the two-day conference.

Participating on the program were W. D. Edwards, president of the N.C. Feed Manufacturers Assn.; Dr. E. P. Singsen, University of Connecticut; Dr. H. L. Wilcke, Ralston Purina Co., St. Louis; Dr. W. E. Thomas and Dr. E. R. Barrick, both of the N.C. State College department of animal industry; Dr. L. E. Hanson, University of Minnesota, and Dr. L. S. Mix, Beacon Milling Co., Cayuga, N.Y.

Energy and Protein

The initial address was given by Dr. Singsen. He spoke on energy and protein in high efficiency broiler and layer rations.

According to Dr. Singsen, the current interest of the commercial poultry and feed industry is centered around three factors: (1) the development of extremely efficient broiler rations, (2) the adaptation of findings in broiler nutrition research to feeds for commercial egg production and breeding flocks, and (3) the feeding of birds between 8 and 20 weeks of age that are reared for replacement stock.

Dr. Singsen's discussion was limited to certain aspects of both broiler and adult bird nutrition and its application.

First, in reporting on broiler rations, Dr. Singsen stated that there had been a steady increase, during the past two years, in the calories of productive energy per pound of broiler ration with the increased use of high protein soybean oil meal and constantly increasing levels of low-grade animal fats.

"These increased energy levels," he continued, "resulted initially in a partial protein and vitamin deficiency, with poor feathering and inferior performance frequently observed."

Research by such men as Combs and Romoser, Donaldson, Baldini and Rosenberg, Matterson, Potter and others has helped clarify the situation.

Research Summarized

Dr. Singsen summarized the results of research as follows:

(1) As the productive energy and protein levels increase in diets of a constant calorie-protein ratio, both growth and feed efficiency tend to improve.

(2) Both chick growth rate and feed efficiency appear to be more closely related to the productive energy content of the diet than they are to the calorie-protein ratio.

(3) As the ratio of energy to protein in a ration is widened, the energy intake and carcass fat deposition are increased, and the water content of the carcass decreased.

(4) The optimum calorie-protein ratio for any particular diet, is modified greatly by (a) the protein content of the ration, and (b) the proportion of the total calories in the rations that is derived from fat.

(5) When sufficient energy is available in the feed, the methionine requirement expressed as a per cent of the diet, increases as the protein level increases.

Early in the 1950's, research revealed that increasing the level of productive energy in rations for laying hens decreased the amount of feed required per dozen eggs produced. In addition, these high efficiency laying rations promoted equally good or better egg production, heavier average body weight, drier litter in the laying pen, and had no influence on annual adult mortality.

"The availability of low grade animal fats has made it possible to further increase the level of productive energy in laying rations," Dr. Singsen said.

The desirability of feeding markedly increased amounts of energy to all types of adult birds, regardless of their body size and relative egg production ability, has been questioned.

Dr. Singsen stated that it is quite possible that extremely high energy intakes and subsequent obesity are not desirable in heavy type breeders of relatively low egg production ability, but there is essentially no research evidence available to indicate the optimum energy for this type of bird.

Feed Additives

Following Dr. Singsen on the program was Dr. Wilcke. His topic was "Non-Nutritive Additives to Livestock and Poultry Feeds."

For years, medicated feeds were

(Continued on page 77)

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
October 6	890	530	586	544	101	435	1,540	1,258
October 13	941	494	487	583	119	447	1,661	1,045
October 20	811	478	471	530	98	358	1,610	1,014
October 27	862	532	626	638	96	363	1,547	1,092
November 3	924	534	634	676	93	426	1,601	1,094
November 10	893	476	732	752	156	465	1,611	1,056
November 17	879	479	756	752	146	536	1,658	1,057
November 24	971	465	627	720	147	467	1,622	1,165
December 1	961	452	618	810	171	491	1,522	1,141
December 8	976	440	546	761	185	467	1,830	1,253

Week ending:	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
October 6	943	396	1,309	368	4,237	212	1,694	1,067
October 13	901	351	1,281	307	4,389	198	1,582	1,065
October 20	808	334	1,268	326	4,276	249	1,654	932
October 27	843	386	1,219	258	4,398	203	1,645	985
November 3	978	381	1,271	305	4,246	196	1,715	1,036
November 10	1,089	345	1,336	296	4,135	220	1,729	976
November 17	1,073	411	1,278	329	4,276	214	1,651	1,015
November 24	971	495	1,276	314	4,286	201	1,687	925
December 1	1,131	398	1,315	364	4,263	229	1,726	1,044
December 8	1,168	360	1,399	302	4,295	211	1,709	1,149

Week ending:	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1956	Total 22 areas 1955
October 6	1,792	252	1,996	178	134	889	21,236	18,176
October 13	1,798	310	2,006	132	136	773	21,006	18,288
October 20	1,714	284	1,826	142	90	744	19,977	18,596
October 27	1,575	232	1,756	155	87	673	20,141	18,780
November 3	1,672	230	1,686	155	127	675	20,655	18,982
November 10	1,760	231	1,749	188	137	944	21,286	19,023
November 17	1,557	292	1,742	212	107	863	21,283	19,595
November 24	1,717	258	1,628	176	125	889	21,138	19,534
December 1	1,713	293	1,638	230	170	856	21,536	20,276
December 8	1,803	293	1,829	233	151	789	22,149	20,447

Protein Meal Futures Show Mixed Changes

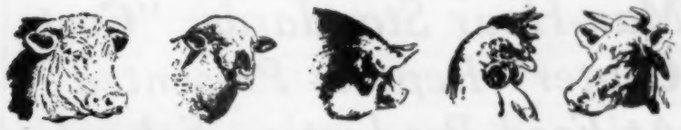
MEMPHIS—Protein oil meal futures prices were mixed at the close Dec. 12 on the Memphis Board of Trade.

Short covering sent the boards up late last week, then prices were mixed early this week, with no feature to trading. Some prices dropped in mid-week as a result of the fact that processors have a good crushing margin, along with strength in oil and unchanged soybean situation.

There was some liquidation, which helped send prices downward on occasion, but rallies from short covering offset a portion of these.

Wide price movements prevailed in cottonseed oil meal in light trading. The cash oil meal demand was sufficient to take care of the supply.

Week's trading included 23,800 tons of unrestricted soybean oil meal, 500 tons of eastern trunk line soybean oil meal, 1,400 tons of solvent cottonseed oil meal, and 100 tons of old process sacked cottonseed oil meal.



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Guaranteed Analysis per Lb.

Arsanilic Acid	6,000 mgs.
Procaine Penicillin	400 mgs.
Bacitracin	200 mgs.
Vitamin B12	0.7 mgs.
Vitamin A	100,000 U.S.P. Units
Vitamin D3	100,000 I.C. Units
Riboflavin	200 mgs.
Pantothenic Acid	400 mgs.
Niacin	1,000 mgs.
Choline	15,000 mgs.

SUP'R-GRO for SWINE

Guaranteed Analysis per Lb.

Arsanilic Acid	4,540 mgs.
Procaine Penicillin	300 mgs.
Terramycin	50 mgs.
Aureomycin	50 mgs.
Bacitracin	500 mgs.
Vitamin B12	0.7 mgs.
Vitamin A	50,000 U.S.P. Units
Vitamin D3	75,000 I.C. Units
Riboflavin	200 mgs.
Pantothenic Acid	200 mgs.
Niacin	1,000 mgs.
Choline	5,000 mgs.

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USE SUP'R-GRO GROWTH FACTORS IN YOUR OWN BRAND FEEDS

Only 10 pounds per ton—improves your feed! Lowers your cost! Increases your profits! SUP'R-GRO will also increase the profits of your feed customers.

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High Potency Antibiotic and Vitamin Drinking Water Medication

Can Also Be Mixed With Feed

GUARANTEED ANALYSIS PER LB.

Bacitracin (Master Standard)	10 grams
Vitamin B12	2 mgs.
Vitamin A	200,000 U.S.P. Units
Vitamin D3	100,000 I.C. Units
Riboflavin	400 mgs.
Niacin	1,000 mgs.
Pantothenic Acid	800 mgs.

TREATS AND PREVENTS MANY DISEASES

CHRONIC RESPIRATORY DISEASE (CRD—Air Sac Disease), BLUE COMB, Non-Specific Enteritis, Rot-Gut, Pullet Disease, Infectious Sinusitis, and unknown poultry diseases for which a causative agent has not been demonstrated.

INFECTIOUS ENTERITIS—A complex disease variously referred to as SCOURS, SALMONELLOSIS, NECRO (Necrotic Enteritis), VIBRO DYSENTERY (Bloody Diarrhea or Black Scours), BABY PIG DIARRHEA.

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New Effective Formula contains Piperazine. Use in Drinking Water or Mix with Feed.

BINGMAN'S P-17 for mastitis . . . mixes in feed

New Approach to Mastitis. Sold on a money-back guarantee. Write for details about the P-17 Guaranteed Feeding Program.

Build a highly profitable repeat business with BINGMAN Products. Nationally and locally advertised. Sold on a money-back guarantee and in demand by livestock and poultry raisers everywhere. Write, wire or phone today!

Note: Sales representatives wanted in many good areas. Write for details.

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Subsidiary of S & H LABORATORIES, Inc., CALDWELL, OHIO

Man-Hour Standards, "Cost Center" Reports Presented At Feed Production School

By ROGER BERGLUND
and THOMAS E. LETCH
Feedstuffs Editorial Staff

KANSAS CITY—Operations in a feed plant can pretty well be broken down into seven sections or departments — ingredient receiving, grain processing, mixing, pelleting, packing, warehousing and loading, and maintenance. In addition, some mills have a set-up to make high-molasses pellets.

Analyze the equipment, operations and labor costs in each of these eight sections or "cost centers," and you have an analysis of the entire mill operation and its labor costs.

Well, that is just what was done in a newly reported feed manufacturing cost study which was presented at the seventh annual Midwest Feed Production School, held Dec. 3-5 in Kansas City under the sponsorship of the Midwest Feed Manufacturers Assn. As a result of the study, labor time or man-hour standards have been established for the various phases of feed production in different size mills.

(An earlier story on the cost study report and its purposes and uses appeared in the Dec. 8 issue of Feedstuffs.)

The study, sponsored by the Midwest association, was conducted by the Midwest Research Institute, Kansas City, with the cooperation of the U.S. Department of Agriculture and the help of the production school committee.

Cost Centers Discussed

Along with the results of the cost study, the more than 600 feed men attending the production school heard talks on each of the "cost centers" by feed production men who discussed and offered practical advice on day-to-day receiving, mixing, pelleting, etc. These talks are reviewed below.

Specialized sessions on various aspects of feed production and talks on other subjects also were highlights of the extensive three-day school, and they are summarized in other stories in this issue of Feedstuffs.

It is necessary to read the entire report on the "Cost Model for In-Plant Operations" to see just how the man-hour figures were determined, to know the specific set of conditions on which the standards are based and to know just how to put the information to use. But the accompanying summary tabulations and sample worksheets from the report provide an indication of what information is available and how it may be used.

The proceedings of the school, including the cost report and texts of talks have been copyrighted by the Midwest Feed Manufacturers Assn., but the material is available to the industry at large this year in the form of a 200-page book which may be purchased from the association. (See accompanying note on its availability.)

Benefits to Manufacturers

The cost study was designed to provide certain benefits to feed manufacturers:

1. It sets forth an approach to be used in the first step in cost (man-hour) control—to know what costs are and where they are incurred. This approach breaks the mill operations down into cost centers and then breaks the cost centers into cost points (as seen in the charts). These breakdowns enable the entire operation to be looked at and worked on, in manageable sections, allowing a comparison and analysis of each individual operation in the mill.

2. The basic data, the standard times and rates, provide a starting point for cost reduction efforts, giving a measure of comparison of existing man-hour costs on a common basis. Using the standard times and the cost center-cost point approach, it's possible to determine not only what each operation does cost and might ideally cost, but also which operations are out of line on a man-hour basis and need attention.

3. Also provided are over-all target figures, resulting from application of data to "model mills," which may be used as a general comparison or quick method to evaluate a plant.

Because it's impractical to try to set standards for the many different capacities and conditions existing in the industry, the researchers used a "model mill" approach. Specific conditions and capacities were assumed, and then equipment and labor needs were determined based on the study of 42 actual mills.

For this reason, the time standards are based on and apply specifically only to the "model mill" capacities and conditions of plant design, equipment and production. However, the method and unit figures outlined in the report are to be used in undertaking one's own cost control program, and the figures are to be thought of as feasible targets.

Basic Conditions

Basic conditions of the study were these:

1. Model mills have eight-hour capacities of 30, 100 and 200 tons; all production operations completed during the eight-hour period.

2. The entire production and all facilities devoted exclusively to formula feed manufacture.

3. Entire operation broken down into the eight cost centers listed above.

4. Incoming ingredients — 75% bulk, 20% bagged and 5% liquids in the 100 and 200-ton mills; 40% bulk, 55% bagged and 5% liquids in the 30-ton mill. In all mills, incoming ingredients 40% grain (bulk), 55%

COST REPORT AVAILABLE TO INDUSTRY

The complete report on the new "Cost Model for In-Plant Operations" is available to anyone in the feed industry. The report, giving labor time standards for various size mills and other results of a feed manufacturing cost study, is part of the published proceedings of the 1956 Midwest Feed Production School. The proceedings also include texts of talks given at the school. The entire publication is a 200-page book, published and copyrighted by the Midwest Feed Manufacturers Assn., sponsor of the school and study. The study was made at a cost of thousands of dollars. The proceedings are being made available to the industry at large this year for the first time. The book may be obtained at a price of $15 from the Midwest Feed Manufacturers Assn., 20 W. Ninth St. Bldg., Kansas City, Mo.

Summary—Man-Hours Per Day

COST CENTER	30 TON MILL		100 TON MILL		200 TON MILL	
	LABOR	FOREMAN	LABOR	FOREMAN	LABOR	FOREMAN
I RECEIVING	4.865	0.75	8.040	1.50	14.147	3.00
II PROCESSING	1.126	0.25	1.899	0.50	1.574	1.00
III MIXING	10.238	1.00	14.521	2.00	24.424	4.00
IV PELLETING	3.575	0.50	7.500	1.00	9.259	2.00
V PACKING	5.240	0.50	10.873	1.00	17.403	2.00
VI WAREHOUSING	20.137	1.00	30.932	2.00	52.709	4.00
	45.181	4.00	73.765	8.00	119.516	16.00
VIII MAINTENANCE	4.800	—	15.000	—	25.200	—
	49.981	4.00	88.765	8.00	144.716	16.00
TOTALS	53.981		96.765		160.716	
	3 TONS PER HOUR		6 TONS PER HOUR		9 TONS PER HOUR	
VII HIGH MOLASSES	7.283	0.50	8.160	0.75	12.288	1.00

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Summary—Man-Hours Per Ton

(Figures based on total tons of feed produced per day, not on tonnage at each cost center)

COST CENTER	30 TON MILL	100 TON MILL	200 TON MILL
I RECEIVING	0.162	0.080	0.071
II PROCESSING	0.038	0.019	0.008
III MIXING	0.341	0.145	0.122
IV PELLETING	0.119	0.075	0.046
V PACKING	0.175	0.109	0.087
VI WAREHOUSING	0.671	0.309	0.264
	1.506	0.737	0.598
VIII MAINTENANCE	0.160	0.150	0.126
TOTAL LABOR	1.666	0.887	0.724
FOREMAN	0.133	0.080	0.080
TOTAL	1.799	0.967	0.804
	3 TONS PER HOUR	6 TONS PER HOUR	9 TONS PER HOUR
VII HIGH MOLASSES	0.369	0.212	0.216

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Cost Center 1—Ingredient Receiving

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a	Bulk grain from R.R. car	0.033 man-hour per ton		
b	Bulk grain from trucks	0.017 man-hour per ton		
c	Bagged ingredients:			
	By hand truck	0.167 man-hour per ton		
	By pallet and fork lift truck	0.111 "		
c'	Bulk soft ingredients from R.R. car	0.067 man-hour per ton		
d	Receive empty bags:			
	By hand truck	0.167 hour per trip		
	By pallet and fork lift truck	0.083 "		
e	Liquid ingredients:			
	30 ton mill	0.025 hour per day		
	100 ton mill	0.062 "		
	200 ton mill	0.083 "		
f	Move cars, clean up, weigh, change spouts and turn grain:			
	30 ton mill	0.500 hour per day		
	100 ton mill	0.750 "		
	200 ton mill	1.000 "		
		TOTAL		
N	Allowances: 30 ton mill	30% of above total		
	100 ton mill	20% "		
	200 ton mill	10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

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Cost Center 2—Grain Processing

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a	Grind - Hammermill (*) (1) Start and adjust	0.167 hour each start		
	(2) Running - check back	0.042 hour each hour		
	(3) Stop	0.167 hour each stop		
b,c	Crimp-Crimper and Crack-Cracker (*) (1) Start and adjust	0.167 hour each start		
	(2) Running - check back	0.042 hour each hour		
	(3) Stop	0.167 hour each stop		
d	Clean up: 30 ton mill	0.167 hour per day		
	100 ton mill	0.333 "		
	200 ton mill	0.500 "		
		TOTAL		
N	Allowances: 30 ton mill	30% of above total		
	100 ton mill	20% "		
	200 ton mill	10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PROCESS PER DAY = _____ = YOUR MAN-HOURS/TON_____

TOTAL LABOR MAN HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

(*) Model mill standards are based on processing one week's supply at each run. Grinding, crimping and cracking rates must be established from equipment outputs to determine hours of running time.

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soft ingredients (bagged and bulk) and 5% liquids.

5. All feed shipped out in 50-lb. paper bags.

6. Production split in all mills as follows—pellets and crumbles, 60%; mash feeds, 20%; dairy feeds, 20%.

7. Total number of formulas mixed per week—60 for the 100 and 200-ton mills, 30 for the 30-ton mill; requiring 12 formula changes per day in the 100 and 200-ton mills and six in the 30-ton mill.

8. Production scheduling such that all operations are as regular as possible.

9. High-molasses pellet operations not considered to be integral part of model mill but separate unit to be put in or excluded.

Other more specific conditions for the model mills and cost centers are outlined in the complete cost study report.

Time standards are presented in four sections: (1) Work requiring time directly proportional to tonnage in process, such as receiving ingredients and packing. (2) Work not requiring time proportional to tonnage but represented as so much time per job or hour or day, such as clean-up, die changes, formula changes, etc. (3) Foreman's time. (4) Allowances—these were established at 30%, 20% and 10%, respectively, for the 30, 100 and 200-ton mills, and were applied at every cost center except maintenance for all labor time spent. The allowances, which take account of the human factor, are highest at the small mill and lowest at the large mill because of more shifting around of manpower, shorter runs, etc., in smaller mills. It is with the allowances that the time standards are converted to realistic figures that are attainable under typical fluctuating production conditions.

The accompanying summary tabulations on man-hours per day and man-hours per ton not only provide the over-all target figures for the different operations; they also show the relative extent of labor requirements in different cost centers. For example, warehousing and loading out represent the biggest single consumer of labor. In fact, if mixing were eliminated entirely, one could save only half as many man-hours as are spent in warehousing.

The report notes that the man-hour figures were built up by cost center under production and equipment conditions specified for each mill and cost center. If conditions are changed, the figures will change. Generally, however, the figures are regarded as fair standards in most mills where a full range of feed is manufactured unless the mill is very old. The figures can be exceeded by the individual putting forth more than "normal" effort.

Smaller figures for cost points within cost centers are said to be the most useful for application in any actual mill. If the figures for a complete model cost center or mill are used, they are to be used only as general targets for comparison.

The accompanying sample worksheets show in general how the study standards may be applied. By multiplying "his quantity" of tons, trips, etc., by the model standards, the mill operator obtains his man-hours per day based on the study standards. By dividing total man-hours per day at each cost center by tons of feed produced per day, the resulting figure is the man-hours per ton for a specific mill.

A worksheet is not shown for maintenance, but certain calculations based on equipment value and cost study interviews resulted in the figures shown in the summary sheets. Incidentally, estimated minimum equipment investment for the model mills was reported at $65,000 for the 30-ton mill, $202,000 for the 100-ton mill and $339,000 for the 200-ton plant. Conveying and certain other equipment and holding bins were not included in the estimates.

To see just how costs are analyzed, how the standards are set and how the information may be applied, the mill operator should obtain the complete report, which is part of the published school proceedings.

Following are reviews of industry men's talks on the various cost centers.

Receiving

The way to cut man-hours per ton in receiving operations is to handle as many ingredients as possible in bulk. This view was expressed by

Cost Center 3—Mixing

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a	Move bagged ingredients: With hand trucks	0.166 man-hour per ton		
	With pallets and fork lift truck	0.083 "		
b	Open bags	0.066 man-hour per ton		
c	Dump bags	0.050 man-hour per ton		
c'	Premix: With 1 ton batch premixer	1.116 MH/ton of premix		
	With 2 ton batch premixer	0.991 "		
d	Weigh bulk ingredients: 1-1/2 ton batch mixer with hand operated valve boxes and 20 batches per day	0.060 hour per batch		
	One 3 ton batch mixer with electronic controls and 33 batches per day	0.033 hour per batch plus 0.2 hour to start		
	Two 3 ton batch mixers with electronic controls and 66 batches per day	0.025 hour per batch plus 0.25 hr. to start		
d'	Move soft ingredients to mixing: 100 ton mill	0.167 hour per transfer		
	200 ton mill	0.250 "		
e	Clean up and bag handling: 30 ton mill - 20 batches	0.075 hour per batch		
	100 ton mill - 33 batches	0.050 "		
	200 ton mill - 66 batches	0.050 "		
f	Formula changes:	0.083 hour per change		
		TOTAL		
N	Allowances: 30 ton mill	30% of above total		
	100 ton mill	20% "		
	200 ton mill	10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

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Cost Center 4—Pelleting

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a	Set up and adjust: 50 HP unit	0.250 hour each start		
	100 HP unit	0.333 "		
b	Die changes: 50 HP unit	0.500 hour each change		
	100 HP unit	0.667 "		
b'	Formula changes: 50 HP unit	0.250 hour each change		
	100 HP unit	0.333 "		
c	Check back: 30 ton mill	0.500 hour per day		
	100 ton mill	1.000 "		
	200 ton mill	1.250 "		
d	Clean up, change scalper screens: 30 ton mill	0.500 hour per day		
	100 ton mill	1.000 "		
	200 ton mill	1.500 "		
		TOTAL		
N	Allowances: 30 ton mill	30% of above total		
	100 ton mill	20% "		
	200 ton mill	10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PELLET PER DAY = _____ = YOUR MAN-HOURS/TON_____

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

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Cost Center 5—Packing

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a & b	Weigh, pack and sew: Single hopper scale	0.083 man-hour per ton		
	Double hopper scale	0.055 "		
c	Obtaining empty bags: 30 ton mill	0.533 hour per day		
	100 ton mill	1.200 "		
	200 ton mill	1.600 "		
d	Clean up: 30 ton mill	0.500 hour per day		
	100 ton mill	0.750 "		
	200 ton mill	1.000 "		
e	Formula changes	0.083 hour each change		
		TOTAL		
N	Allowances: 30 ton mill	30% of above total		
	100 ton mill	20% "		
	200 ton mill	10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

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W. B. Briggs, Spartan Grain & Mill Co., Spartanburg, S.C. By using automatic equipment and handling materials in bulk, he pointed out, less labor is required. However, the men operating such a plant must be well trained.

For handling certain types of bulk ingredients, Mr. Briggs said, the truck lift and hopper car require the least amount of labor in unloading. However, the supply of hopper cars is limited. He also mentioned other bulk and sack unloading equipment, including the power shovel, pneumatic systems, payloader, car dumper, fork lift trucks and hand trucks.

Type of Bins

In discussing types of bins, Mr. Briggs said that hoppers on bins for grains are usually on a slope of 8 and 12, which is about 33°. For prepared ingredients such as soybean meal, bran, etc., there should be a bin hopper of 55 to 70°, preferably having at least two straight sides. Steel bins, it was noted, usually require a smaller investment on a cubic foot basis than concrete. The glass lined bin has come into use for a good many special uses; it has a flat bottom and a satisfactory feeder to empty the bins, Mr. Briggs said.

In storing sacked ingredients, Mr. Briggs warned against stacking around the roof truss. With heavy ingredients on a wooden floor, it was advised, the material should be put in several different areas to minimize strain on the floor. In buying ingredients, an important item is scheduling of arrival times. A uniform arrival is cheaper in man-hours.

An important factor in receiving is shrinkage, which usually is less with bulk handling. Usually the amount of material left in a bag is less than a half pound, but it adds up. If the bags are cleaned and material recovered, it still generally must be classed as screenings. Mr. Briggs cautioned against neglect of adjustment of cleaning machines. Regarding dust in the mill proper, he said that it may pay to install a filter to get almost complete recovery. This is one place, he added, where pneumatic unloading is valuable since filters are usually included with this equipment.

The dust hazard in a mill is minimized if housekeeping is good, Mr. Briggs pointed out. He said that class 2 group G equipment provides the best protection. Many plants use totally enclosed equipment. Mr. Briggs suggested using flashlights if there is a problem in connection with light in bins.

Grain Processing

Grain processing is one of the most important industries contributing to the survival of man, said Robert R. Bredt, Fruen Milling Co., Minneapolis. But in order to produce a first class end product, the ingredients must also be first class.

Mr. Bredt outlined the cleaning methods used by his firm and then discussed processing. He indicated that making crimped oats to satisfy the trade was a "frustrating experience" when the company did its own crimping since almost every order had to be tailor made. Cooling and drying were a problem, and the company used a horizontal cooler and dryer with three exhaust fans and two circulating fans.

For steam rolling oat groats, barley and wheat, Mr. Bredt said, "we use two stands of flaking rolls, each roll 15 by 30 with a 40 H.P. motor on each stand. We use a vertical steam chamber for each stand of rolls with 75 lb. steam pressure. By preheating the oat groats in a rotary oven just previous to flaking, we are able to kill the enzymes and prevent any deterioration." Mr. Bredt said that his mill uses the impact method for hulling oats and a continuous pearler for hulling or pearling barley.

Grinding

Hammer mills are the most popular grinding equipment and give rugged, versatile grinding, Mr. Bredt said. Attrition mills give a good, fine grind but leave slivers. A combination of the two, he continued, will give a smoother grind and more capacity. "Run the main stream to the attrition mills, then to sifters which are clothed to give you the grind you want, with the tail going to the hammer mills," he said.

Mr. Bredt said his firm solved its dust problem by installing pneumatic equipment on all grinders. This also eliminates the fan on the hammer mill, which gives 20 to 25% more power for grinding.

Discussing feeders, he said he had found the vibrating type to be very effective. He also still uses the wing type, which he called satisfactory for uniform materials. Mr. Bredt went on to mention the importance of scalping and magnetic equipment ahead of grinding.

For cracking, Mr. Bredt runs the material through the rolls, then grades it, sometimes over a sieve machine, sometimes a disc, sometimes both.

Mixing

The actual mixing process in any feed mill is one of the most important phases of an operation, said Harold Ory, Ralston Purina Co., St. Louis. He stressed the importance of having well qualified, well trained mixer men who know ingredients and what feeds should look like after blending, know what drugs or feeds can't follow other drugs or feeds, know what to flush a system with, will handle a reporting system so it is known that the job is being done right, etc. The mixer man sets the production pace, and he must be challenged to do better.

In making premixes, it is important to schedule mixing time and select the carrier so that good distribution is achieved. Particle size is important in getting adequate dispersion. Mr. Ory said that a ton should be the maximum premix batch size. He noted that ribbon-type and vertical mixers provide good action and can handle liquid additions. End-over-end mixers are the best cleaning type, he said, but are not good for liquids.

Batch Mixing

Discussing batch mixing of mashes, Mr. Ory said that a 30-ton-per-day mill offers no automation in mixing.

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Cost Center 6—Warehousing

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a'	Load bags on hand trucks or pallets	0.083 man-hour per ton		
a	From packing to R.R. cars & load: *' By fork lift truck - 100'	0.040 man-hour per ton		
b	From packing to warehouse & stack: *' By fork lift truck - 100' *" By hand truck - 60'	0.020 man-hour per ton 0.167 "		
c	From warehouse to R.R. car & load: By fork lift truck - 100'	0.050 man-hour per ton		
d,e	From warehouse to truck & load: *' By fork lift truck - 100' *" By hand truck - 60'	0.120 man-hour per ton 0.200 "		
f,g	Car preparation and finish loading R.R. cars	1.417 man-hours per car		
h,j	Clean up and resack broken bags: 30 ton mill 100 ton mill 200 ton mill	1.000 hour per day 3.333 " 5.667 "		
k	Checker: 30 ton mill 100 ton mill 200 ton mill	1.000 hour per day 2.000 " 4.000 "		
		TOTAL		
N	Allowances: 30 ton mill 100 ton mill 200 ton mill	30% of above total 20% " 10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

*' Fork lift truck movement based on approximately 100' one way travel - for each additional 100' one way, add 0.008 man hour per ton.

*" Hand truck movement based on approximately 60' one way travel - for each additional 60' one way, add 0.066 man hour per ton.

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a 100-ton mill can provide some automation, and in a 200-ton plant, there should really be automation.

He said that since most mixers don't do a good job mixing when less than half full, bulky ingredients to half capacity should be added first, then small ingredients, followed by rather large quantities at the end of the dump. Only thorough research can actually determine proper mixing time, Mr. Ory said, but most mixes can be accomplished in eight minutes.

He said that a mixer should yield 59 bags of feed from 60 bags of material. He emphasized the need for adequate cleanout of mixers and advised a regular inspection plan. He said there should be inspection or view holes in mixers.

Noting increased use of liquids, he said that the operator must run the machine properly. Here, as in all mixing, manpower, not machinery, is the greatest problem, Mr. Ory said.

Pelleting

"Pelleting of feeds is an operation that can be very costly," said M. A. Williams, McMillen Feeds Mills, Decatur, Ind. "It is an operation that requires proper scheduling and close supervision from the time the formula is issued until the finished product is bagged or loaded in bulk form."

Discussing hard pellets, Mr. Williams first mentioned certain factors in connection with formulas—particle size, mineral content, fat level, milk products, molasses and moisture content.

Continued on page 75

Cost Center 7—High-Molasses

Item	Job	Model Time Standards	x Your Quantity	= Your MH/Day
a	Starting up & formula change: 3 tons & 6 tons per hour 9 tons per hour	0.250 hour each change 0.333 "		
b*	Checking back on operation: 3 tons and 6 tons per hour 9 tons per hour	0.333 hour each hour 0.667 "		
c*	Pack and sew: 3 tons per hour 6 tons per hour 9 tons per hour	0.333 hour per hour 0.500 " 0.750 "		
d	Clean up: 3 tons per hour 6 tons per hour 9 tons per hour	0.583 hour per day 0.750 " 1.333 "		
e	Obtaining empty bags: 3 tons per hour 6 tons per hour 9 tons per hour	0.133 hour per day 0.200 " 0.200 "		
		TOTAL		
N	Allowances: 3 tons per hour 6 tons per hour 9 tons per hour	30% of above total 20% " 10% "		
	TOTAL LABOR MAN-HOURS PER DAY - YOUR MILL			(H)

TOTAL LABOR MAN-HOURS/DAY - YOUR MILL (H) / TONS YOU PRODUCE PER DAY = _____ = YOUR MAN-HOURS/TON_____

* Man hours per day based on actual running time:
3 tons per hour mill - 6.58 hours running time
6 tons per hour mill - 6.42 hours running time
9 tons per hour mill - 6.33 hours running time

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Production Men Hear of New Developments, Get Helpful Advice at Special Sessions

KANSAS CITY — The various phases of feed production are getting more complex and specialized, and, in line with this trend, the recent Midwest Feed Production School gave special attention to certain operations in six specialized sessions.

Experts from the feed industry and allied industries reported on new developments, offered practical advice and answered questions on packaging, pellet mill die and roll maintenance, air handling, proportioning and bin flow, drugs and premixing, and warehousing and shipping.

The talks and discussions by the panel members provided production men with information on some of the latest developments in these fields, and considerable emphasis was put, too, on ways to reduce costs while increasing efficiency.

Reviews of the specialized sessions follow:

Packaging

Ways to possible savings of $46,662 a year in a typical 100-ton-per-day mill were explained by Frank Instone, St. Regis Paper Co., Chicago, a member of the specialized packaging session panel.

Mr. Instone broke down packaging operations into six major areas and discussed how savings could be made in each area. Admitting that the $1.897 per ton saving for a total of $46,662 a year was a Utopian figure, he stressed that if a mill could accomplish only one fourth or one eighth of the savings outlined, it would be important dollars in the feed man's pocket. The report covered only 50-lb. multiwall bags, the same package assumed for the Midwest feed manufacturing cost study.

Major cost areas and ways to save were outlined as follows:

1. Proper bag specifications. If a mill that is using a 150-lb. basis bag can reduce the construction to 130-lb. basis, a savings of 24¢ ton or $6,000 annually can be realized. The 2/40 and 1/50 lb. ply 130-lb. basis is considered standard for the feed industry. In bag ordering, savings can also be made by taking advantage of discounts for quantities The expense of name changes can be reduced by using a Schmutz press for partial printing of the bags in the mill. By using a press to print the type of feed, analysis and ingredients, savings of 13¼¢ ton of packaged feed or $3,312 a year are possible. By following these two recommendations, the reference mill was able to effect savings of 37¼¢ per ton or an annual savings of $9,312. These savings are in addition to others obtained through such things as proper sizing of bags, elimination of large stock inventory, etc.

2. Weighing accuracy. To insure against shortweights, a feed manufacturer sets his scale to give all weights above the desired net weight. An automatic bagging scale capable of plus or minus 4 oz. accuracy, requires that the manufacturer set it no lower than 50 lb. 4 oz. This is a 4 oz. giveaway per bag, or 1,000 lb. of feed a day in the 100-ton mill. By reducing the giveaway from 4 to 2 oz. through modern equipment, a saving of $6,250 annually would result. Thus new equipment expenditures, if required, can be justified.

Other approaches to reducing the giveaway include: Seeing that the scale is operated at the proper speed; making sure of proper head control and uniform feeding rate; periodic expert maintenance of the scale; checkweight program.

In the representative mill, through the installation of new equipment and the proper operation of existing equipment, the amount of giveaway was reduced from 6 to 2 oz. per bag with a resultant savings of 50¢ ton or $12,500 a year.

3. Labor. Some of the aids available to make high speeds possible at good accuracy with a minimum of labor include: New duplex and single bucket scales that will give 10 or more charges per minute with a single and 20 or more with a duplex, all with 2 oz. accuracy; pneumatically operated bag clamps with oval spouts; a settler-conveyor which levels and settles the feed and shapes the bag top; automatic sewing head control; automatic thread cutters; spot pasting to help snap the gussets to a partially closed position; thumb notches or offset gussets helping the operator pick up and open bags faster; microfog lubricators to provide the automatic lubrication.

In the representative mill two men were being used to weigh, pack and sew ten 50-lb. bags per minute. Through introduction of available aids for closing and some operator training, this rate was accomplished with one man at a savings of 16¢ per ton or $4,000 year.

4. Settling or packing. Through introduction of a settler-conveyor in the representative mill, package length was reduced by 2 in. for mash and crumble packages which accounted for 75% of the production. This represented a savings of 12¢ ton or $2,250 a year.

5. Closing costs. By using rayon thread instead of cotton, a savings of 40¢ per thousand bags or 1¢ ton is possible. A conversion from 2⅛ in. 70 lb. crepe with cotton thread to 2⅛ inch 70 lb. flat tape with rayon thread can mean a savings of 1¢ per ton. A thread saver can help reduce costs. Average thread waste on 50 lb. bags runs as high as 12 in. per

SCHOOL SPEAKERS—Shown here are some of the speakers at the Midwest Feed Production School Dec. 3-5 in Kansas City. The speakers, while discussing their part of the program, are standing by one of several pieces of new equipment—in this case, a Bemis Packer-Ette—on display and operating at the school. Left to right are William Bailey and Frank Ross, Midwest Research Institute, Kansas City; Harold Ory, Ralston Purina Co., St. Louis; Robert Bredt, Fruen Milling Co., Minneapolis; Merl Williams, McMillen Feed Mills, Decatur, Ind., and Raymond Routh, Quaker Oats Co., Memphis.

TALKING IT OVER—Between-session conversations about production problems were an important part of the Midwest Feed Production School in Kansas City. And, as illustrated in the first picture above, the school made it possible for men from long distances apart to exchange ideas. Both coasts of the U.S. are represented in this photo. Left to right are Robert Burger, John W. Eshelman & Sons, Lancaster, Pa.; Robert Meares, Eshelman, Sanford, N.C.; Dr. Otto J. Hill and Floyd Knapp, both of Washington Co-op Farmers Assn., Seattle. In the second photo are Louis Wenger, Wenger Mixer Mfg. Co., Sabetha, Kansas; Ray Thornburrow, Archer-Daniels-Midland Co., Marysville, Kansas, one of the few feed men who has attended all seven production schools; Raleigh Hays, Dannen Mills, Inc., St. Joseph, Mo., and LeRoy Will, Topeka (Kansas) Mill & Elevator Co. In the third picture are Ogden Confer, Hubbard Milling Co., Mankato, Minn.; Paul Frederick, Hubbard, Marion, Ind., and E. C. Uner, T. E. Ibberson Co., Minneapolis.

bag. This amounts to 2.4¢ per ton.

By converting to rayon thread, ordering bags with flat tape and rayon thread and elimination of thread waste, a savings of 4.4¢ ton or $1,100 year was made.

6. Breakage. The principal causes of cripples in filled bag closing and movement of bags to pallet loading tables are incomplete sewn closures and loose sewn closures which slice through the plies.

Some 70% of the cripples in palletizing filled bags, handling them in storage and transferring them to shipping carriers result from unevenly palletized bags whose protruding gussets, butts, tops and sewing lines are gouged in the warehouse by fork trucks, other pallets and other bags.

Bag humidification will reduce breakage. Maximum strength is obtained when the kraft paper contains approximately 7% moisture. This level can be maintained by bag storage room conditions of 50° F. and 60% relative humidity.

Because of the intangible as well as the tangible costs of bag breakage, one manufacturer has estimated the breakage loss at $2 bag. In the representative mill, breakage was reduced from 2½% to ¾-1%. Assuming a total breakage cost of only $1 per bag, this amounted to a savings of 70¢ ton or $17,500 a year.

Blaine H. Loudin, Union Bag-Camp Paper Corp., New York, a member of the panel, pointed out that once a bag dries out, it is difficult if not impossible to get the desired moisture back into it, and breakage results.

Mr. Instone, Mr. Loudin and H. K. Fox, Bemis Bro. Bag Co., Minneapolis, the other members of the panel, answered questions.

Robert A. Seamon, Maritime Milling Co., Buffalo, N.Y., was chairman of the panel.

Die, Roll Maintenance

In a discussion of pellet mill die and roll maintenance, and die surface study, Henry E. Morse, metallurgist, California Pellet Mill Co., San Francisco, explained how the dies and rolls of a pellet mill are made, what they are designed to do, and some of the problems that are encountered in maintaining them.

A die, he explained, must be hard to withstand abrasion, tough to withstand pressure and resulting distortion, and shock-resistant to withstand the blows and shock loading of uneven and hard material being pelleted.

Maintenance factors important to the operation of a pellet mill include: (1) Die mounting, (2) cleanliness, (3) handling and (4) roll condition.

Proper die mounting is such that the die will be held as rigid as possible, Mr. Morse said. Regular checking is required to establish proper tension and seat for each mounting clamp. The demountable rim also must be tight. Cleanliness of dies is required if uniform and satisfactory performance is to be kept up. Dies should be protected during storage and down time by cleaning out with a sawdust containing a neutral oil.

"A very common cause of die trouble, traceable to poor or careless maintenance, is mutilation of the die surface or other part during handling," the speaker warned. He cautioned against driving a die into place with a hard steel hammer. To mount dies he suggested either heating the die or using a soft metal or a wooden hammer. Heating with a torch should never be done.

Another source of damage to dies is tramp metal. Magnetic separators should be used to catch this metal. Still another source of die injury is the metal-to-metal contact resulting from running the mill with a tight roll adjustment against the die surface with no feed entering the mill.

Roll Maintenance

In roll maintenance, the surface must be kept in such a condition that it will maintain equal pressure on all of the hole rows of the die, Mr. Morse said. The most important element of maintenance is that of the flatness and squareness of the tread. "Worn rolls should be replaced before they

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Handling and Mixing of Liquid Ingredients Outlined

KANSAS CITY — Some scientists have predicted that livestock and poultry in the future will be drinking more of their feed—that is, nutrients will be in liquid form or part of the drinking water. That, of course, isn't generally the case yet, but any feed mill operator will agree that liquid ingredients in dry feeds have been assuming increased importance.

For that reason, a special session of the recent Midwest Feed Production School was devoted to handling, application and mixing of liquids into feeds. Three liquids—phosphoric acid, fish solubles and fats—came in for attention.

Co-chairmen of the session were J. W. Sloan, Cosby-Hodges Milling Co., Birmingham, Ala., and Forest Lipscomb, Jr., Lipscomb Grain & Seed Co., Springfield, Mo. Principal speakers, covering the three liquids, were: Robert F. Bryant, Victor Chemical Works, Chicago, phosphoric acid; W. E. Rogerson, VyLactos Laboratories, Des Moines, fish solubles; Richard V. Lucas, Jr., Walnut Grove Products Co., Atlantic, Iowa, animal fats. Panel members assisting in answering questions were William Carter, Buffalo (N.Y.) Meter Co.; D. R. Fischer, Monsanto Chemical Co., St. Louis; R. J. Fleming, National By-Products, Des Moines; Jack Wall, Sprout, Waldron & Co., Muncy, Pa.; A. W. Stegner, Butler Mfg. Co., Kansas City; Oak Smith, Wenger Mixer Mfg. Co., Sabetha, Kansas, and S. J. Shartran, Fairbanks-Morse, Kansas City.

Phosphoric Acid

It was explained during the discussion that the use of phosphoric acid as a source of supplemental phosphorus in feeds is still a relatively new development. It is still in the experimental and developmental stage, panel members said, but producers are working with feed manufacturers and further developments and information on its commercial use are expected soon.

In an extensive report on the properties and handling and mixing of phosphoric acid, Mr. Bryant explained that it is made from phosphate rock. The principal process is the thermal reduction or electric furnace process, which produces a food grade product. The 75% strength acid is the most commonly used industrially.

Physical Properties

This substance will freeze at 0° F. However, Mr. Bryant said, except for situations where sub-zero temperatures may be expected for several consecutive days, the acid of 75% strength can be stored in outdoor non-protected tanks with little danger of freezing. If protection is required, outdoor tanks should be equipped with steam coils mounted several inches below the tank and the space below the tank enclosed so that the air can be heated to 125°. Viscosity does not increase rapidly until temperatures within the near-freezing point range have been attained. The acid remains sufficiently fluid at these conditions to be pumped and accurately measured by volumetric displacement meters.

Because of the product's corrosive nature, Mr. Bryant suggested that stainless steel (Type 316 E.L.C.), rubber-lined steel and certain plastics be used for storing and handling facilities.

In unloading, compressed air or a pump may be used. Mr. Bryant also outlined systems for transferring and metering phosphoric acid into feed. The fundamental objective of these systems, he said, "is to replace the

SPECIALIZED SESSIONS—Specialized sessions, covering various aspects of feed production, were an important part of the 1956 Midwest Feed Production School in Kansas City. Shown here are panel members who spoke and answered questions. In the first photo, at the session on pellet mill die and roll maintenance, are, left to right, Chester N. Hultberg, California Pellet Mill Co., Crawfordsville, Ind.; Henry Morse, California Pellet Mill, San Francisco, and James C. McNeil, Pillsbury Mills, Minneapolis, chairman. In the second picture, at the packaging session, are Frank Instone, St. Regis Paper Co., Chicago; Robert A. Seamon, Maritime Milling Co., Buffalo, chairman, and Blaine H. Loudin, Union Bag-Camp Paper Corp., New York. Members of the air handling panel are shown in the third photo—Brown Jenkins, Jones-Hettelsater Construction Co., Kansas City; James Leker, Staley Milling Co., Kansas City, chairman; David Armstrong, The Fuller Co., Kansas City; and Ray Shook, Sprout, Waldron & Co., Inc., Muncy, Pa.

amount of calcium and phosphorus obtained from presently used dry forms of calcium phosphates with that of limestone as the source of calcium and phosphoric acid as the source of phosphorus."

In batch systems, the acid may be metered and controlled manually or automatically. Mr. Bryant said the most sensible means of introducing the acid into the mixer is by spray nozzles. The rate of flow for continuous feed mixers may be of the order of 3 gal. per minute. A heat exchanger is recommended for a system employing automatically controlled rotameters. In a continuous system, equipment must be selected to accurately meter the acid at a specified rate of flow.

Fish Solubles

A method for unloading, storing and applying fish solubles for a mill producing a minimum of 100 tons of feed a day was outlined by W. E. Rogerson, VyLactos Laboratories, Des Moines.

Fish solubles should be approximately 50% solids and have a disagreeable odor, Mr. Rogerson said, but frequently they do not have 50% solids and decomposition may have started. The simplest way to analyze for decomposition is to analyze for ammonia nitrogen; .8% ammonia nitrogen is the critical point, with readings over that indicating poor solubles. On an over-all analysis, the speaker urged these standards: 50% solids, guarantee of 32% protein, .8% ammonia nitrogen, fat not to exceed 6% and salt not to exceed 6.1%.

In unloading cars, steam for heating and air for agitation should be available at the unloading riser. The solubles should be strained through a large vertical suction strainer to remove any foreign matter. Mr. Rogerson recommended use of a 2½-in., 50-gal.-per-minute pump at 230 r.p.m. This pump, he said, should be a 10 h.p., gear motor, all-iron, steel-fitted and be equipped with a relief valve. In handling fish solubles, iron and steel fittings only should be used.

Solubles can be stored in either concrete pits or steel tanks, Mr. Rogerson said. The tanks should be vented and equipped with a propeller agitator or pipes for air agitation. Storage capacity should be about 20,000 gal. if solubles are bought by tankcars. Sodium propionate should be used to prevent mould.

Mr. Rogerson recommended that a 2-in. all-iron, steel-fitted pump, with a relief valve, be used to pump from storage to mixer. This should have a 2 h.p., 230 r.p.m. gear motor. The line from storage, through the pump, to the mixer should be 2 in. Between the pump and mixer a heating element should be installed. Hot water is better than steam for heating, Mr. Rogerson said. Fish solubles should be heated to about 140°. After the solubles are heated, they should again be strained to eliminate foreign material.

"We believe that the solubles should be applied in a small, high speed continuous mixer just before entering the pellet mill or just before entering the surge bin above the mash scales," Mr. Rogerson said. "The meal is proportioned into this continuous mixer by a percentage feeder and the fish solubles are proportioned by flow meters with remote control stations by the operator. A three-way cock valve should be installed just after the meter so that a periodic check can be made on the amount of solubles flowing into the mixer. We believe that for best distribution, two ¾-in. spray heads should be used at each mixer. These should be of the square pattern type.

"If you desire to apply the fish solubles at a central batch mixing station, the system would still be the same, only four ¾-in. square pattern nozzles would be used in a 1-ton mixer and six in a 2-ton mixer."

Animal Fats

The cost of handling fats should be less than for handling dry ingredients, according to Mr. Lucas. However, certain problems are encountered.

In unloading a tank car or truck, the fat should be heated to approximately 120° before draining. Mr. Lucas warned that the fat must be melted all the way through the car before being unloaded.

Storage tanks can be either vertical or horizontal and either steel or monolithic concrete. The most important way to combat rancidity is the use of a fat with an antioxidant added for stability. The primary enemies of fat in storage are moisture and excessive heat over too long a period.

Enough storage should be provided for 1½ carloads of fat but in two or three tanks instead of just one. By using several tanks, only one need be kept at pumping temperature and the stability of the fat in

Continued on page 72

UNIQUE IN INDUSTRY

KANSAS CITY—A peculiar blending of competition and cooperation is what Hugh Kelley, Ames (Iowa) Reliable Products Co., called the Midwest Feed Production School in a concluding talk. Mr. Kelley, secretary of the Midwest Feed Manufacturers Assn., said that the school was unique as far as American industry is concerned. Pointing up the "tremendous effort" of the school's planning committee, Mr. Kelley said that the investment of these men in time and money has been huge. Robert Meares, John W. Eshelman & Sons, Sanford, N.C., attending the school for the first time, paid tribute to the Midwest association. "The school has given me much useful information," he said. "This is my first school, but from now on I'll attend as long as I am able."

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Partnership Presents Troubles

By Al P. Nelson

It was the Christmas season, and everywhere in the little village of Hansen's Creek, population 1,200, there was the sound of Christmas music issuing from the merchants association's sound speakers. Strings of colored lights were across the streets, and streetlight posts were decorated with Yuletide pictures and Christmas tree branches. Store windows also glistened with silver snow, colored lights and colorful Santa pictures, while on the streets, happy shoppers, their cheeks rosy from the cold, chatted and laughed as they trudged along with packages under their arms.

But there was no happiness in the face of the young farm woman in brown cloth coat and worn fur trim who entered Joe Brooks' office late in the afternoon. Her face looked sad and worried. Joe recognized Mary Kellogg, wife of Bert Kellogg, one of his best customers on Rt. 5. Mary and Bert were in their early thirties and had three children, the youngest 5, the oldest 9.

"Hello, Mary!" greeted Joe, cheerfully. "Where's Bert and the kids?"

The woman smiled wanly. "Oh, he's down at Gebhardt's Hardware with Grandpa buying some toys for the kids. And the kids are over at Grandma's on Elm St."

Joe nodded. "You've got a nice family, Mary, and the grandparents think a lot of you, Bert and the kids. I think it was unusual that Grandpa Kellogg sold a half interest in the farm five years before he needed to retire, just so Bert and you could get started halfway on your own at an early age. Not many parents would do that."

Mary Is Unhappy

Mary Kellogg nodded miserably. Despite her paleness it was evident she had once been a pretty girl. "B-but I'm not happy, Mr. Brooks!" she burst forth. "T-the fact is I'm-I'm miserable. Just miserable."

And then she began to cry.

Joe was amazed. This was one family he thought was very cooperative and happy, parents and grandparents. But apparently it was otherwise.

Mrs. Kellogg had dried her tears. At Joe's invitation she sat down. He didn't want to ask questions; he felt that it was not his place to do so.

"Maybe you are just tired, Mrs. Kellogg. All of us get downhearted now and then. Tomorrow you may feel different."

Sad Mrs. Kellogg shook her head. "No, it won't be any different. I've laid awake nights thinking about it, but I can't see a way out. We are trapped, Mr. Brooks. We are trapped. You have always helped Bert and me with our feeding problems. So-so I've come to you. You know many farmers. Surely we aren't the only ones with this problem."

Joe brushed back his brown hair. "What problem, Mrs. Kellogg?" he asked gently. In the feed business he had learned that all problems which came his way did not have to do with feed and related products.

"It's Grandpa!" Mrs. Kellogg burst forth. "I like him—at least I thought I did. But he's in the way all the time. I-I don't think I cand stand it much longer."

"Oh?" Joe replied.

"Because he's in partnership with Bert, he feels he must come to the farm every day—all day," Mrs. Kellogg said. "He leaves Grandma alone in their house in town, and drives back and forth. This means he is here for two and three meals and lunches every day. It means more cooking and dish washing for me. Even on days when there are only a few

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chores to do, he comes to the farm. He says he would rather be here on the farm than in town."

"Old people have a hard time changing," Joe said.

"I know it," burst forth the young Mrs. Kellogg. "But he insists on hanging around the kitchen and house all the time. I have no privacy. On rainy days he turns on the radio or television and sits with his feet on a chair listening all day long. And he tells me over and over again what's wrong with young people nowadays and how they bring up their kids. And he tells me over and over again about how it was when he was young. Oh, I feel like screaming when he starts those stories."

She sobbed slightly.

"How does Bert feel about this?"

Bert Wants Privacy, Too

"He feels almost like I do," the young woman said. "He wants more privacy for us. But he feels sorry for his dad, too. What can we do, Mr. Brooks? Isn't there some way we can handle this problem and still maintain good relations with our in-laws? I've tried hard to get along with them. But I can't stand seein' so much of them, or him, every day, in my house. I-I feel I'm not the owner."

Joe looked very thoughtful. "Well, your father-in-law won't sell to Bert, will he?"

Mrs. Kellogg shook her head. "Bert asked him once and Dad was mad at him for a week."

Once more Joe looked thoughtful. "And you have a hired hand's house on the premises, haven't you?"

Mrs. Kellogg nodded. "But it isn't occupied most of the time. Dad and Bert don't need a hired man the year around, only for a while in summer."

"Uh, huh. Well, why don't you and Bert ask his Dad and Mother to come back and live on the farm, in the hired man's house? I think they might be happier."

The woman looked amazed. "B-but the house needs so many repairs!"

"It's a sturdy house," Joe said, "and it could be put into good shape with a remodeling program. Point out to Dad that what he spends for rent he could put into the other house. And he would save the car expenses to the farm and back from town every day."

The farm woman was engrossed with Joe's idea. Her eyes had a far-away look. "I know they are unhappy in town. They have hinted many a time, especially Dad, that he would like to be back on the farm. B-but wouldn't they bother me more if they lived on the farm than they do now? Would Bert and I have the privacy we want?"

"Maybe not 100%," Joe said, "but perhaps more privacy than you have now. If Bert's Dad had a house of his own on the farm, he would sit there most of the rainy days, watching TV or listening to radio. And Grandma

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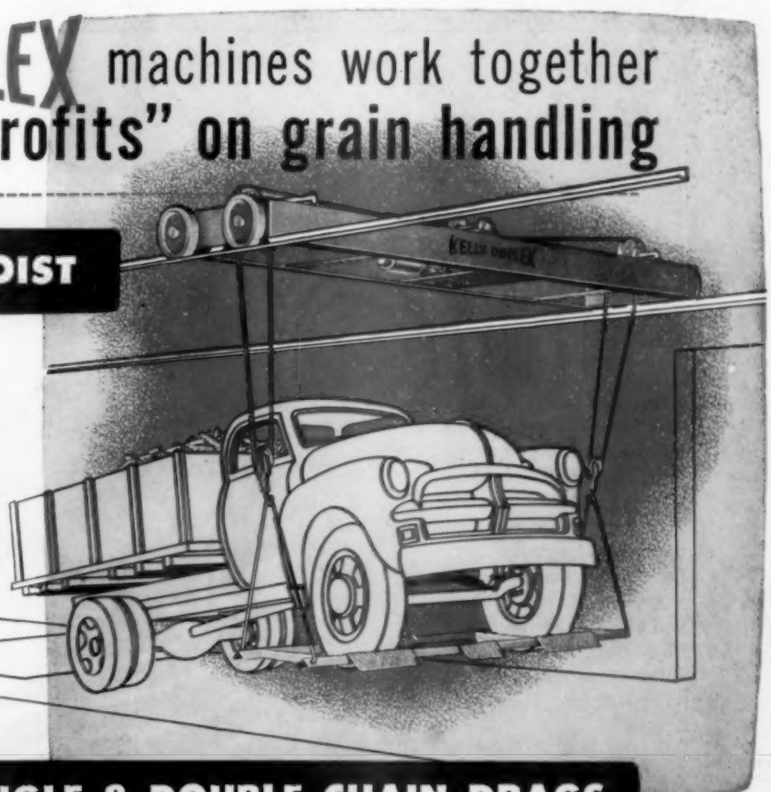

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would have to listen to all his stories about what's wrong with young people today, and the stories about how it was in the old days." Joe grinned. "Maybe she'd enjoy hearing those stories. Maybe she thinks as he does. And maybe they would be happier."

Mary Smiles

The farm woman laughed for the first time. "Perhaps you are right, Mr. Brooks." She rose to her feet, her eyes and face much brighter. She looked years younger. "It certainly is worth a try. Now I must hurry down to Gebhardt's to meet Bert and Grandpa. Maybe I can get Bert aside long enough to tell him your idea. Maybe this will be a happy Christmas for all of us, Mr. Brooks. Thanks so much."

When the farm woman had gone, Joe sat in his swivel chair at the desk, hands cupped behind his head, looking out through the window into the street where the colored Christmas lights were now burning.

"I certainly hope I gave her the right formula," he said aloud, a prayer in his heart. "With a feed formula you know you are right, if you proceed properly. But with a formula for human beings—I guess I'd better do some more prayin' tonight, and ask Mary to do some, too, for the Kelloggs."

Microscopists Change Date of Meeting

JEFFERSON CITY, MO. — A change in the dates and location of the fifth annual meeting of the American Association of Feed Microscopists has been announced by G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo., secretary of the organization.

The meeting will be held at the Phoenix Hotel, Lexington, Ky., on April 8-10. The meeting originally was scheduled for April 15-16 at State College, Miss.

Canadian Feed Men To Meet June 6-8

SASKATOON, SASK. — The 12th annual convention of the Canadian Feed Manufacturers Assn. will be held in Saskatoon, Sask., on June 6-8, with the Saskatchewan Feed Manufacturers Assn. playing host to the national organization.

Convention plans are under the directorship of W. Wilson and a complete set of committees has been instrumented within the membership of the Saskatchewan Feed Manufacturers Assn. to prepare the program.

Well known Canadian and U. S. nutritionists and allied trade representatives will speak. A brief tour through the city and the campus of the University of Saskatchewan is planned for one afternoon.

A ladies' committee is planning an interesting program for wives of delegates.

Bigger Farms Will Dictate Changes By Feed Dealer

Important changes in feed retailing can be expected in the years to come. The changes will come because feed customers change. That is the feeling of E. G. Cherbonnier, consultant to the Grain & Feed Dealers National Assn. In a recent feed forum for dealers he went into detail on some changes which may be in the offing, citing the likelihood of bigger farmers demanding the services of bigger dealers. The text of Mr. Cherbonnier's talk follows:

A man and his wife were driving through the Blue Ridge Mountains and stopped for a picnic lunch. Along a trail came a Marine, in full uniform, pacing back and forth.

The travelers asked if there was a Marine encampment nearby. "No," he said. "I am guarding Admiral Hopkins' goat. The doctors prescribed goat's milk for him and I was detailed to watch the goat."

The traveler replied that he had known Admiral Hopkins, but thought he had died two years ago. The Marine replied, "Yes, and the goat's been dead a year, but nobody's changed my orders."

The feed business fortunately isn't like that. We are changing our thinking and our action mighty fast. We must, to keep up with the many advancements in all fields of feed manufacturing and distribution.

The Radio Corporation of America says that 80% of its sales last year were in products and services which did not exist 10 years ago. They predict that at least 50% of the industry's business in 1966 will be in products not now commercially available. And the feed business has been moving nearly as fast.

But it's easy to fall into the error of thinking, "Well, I guess most of the changes are over now, and we can jog along in the old path."

The great leaders of our time have been great students of history. Winston Churchill is even now writing a history of England. Our presidents and leading generals are familiar in the pages of history because the study of the past helps us better to meet the future.

Let's look at the very recent past of the feed business. In nutrition we have seen in a few short years the introduction of antibiotics, stilbestrol, trace minerals, synthetic amino acids, high-energy feeds and now disease prevention in the sack is coming to the front.

Tomorrow we may be putting enzymes in the feed bag and there is no telling what will come from the test tubes and the research farms next year and the year after.

In manufacturing we have seen pelleting, crumblizing, bulk han-

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2. Promote those feeds hard
3. Back our dealers to the hilt

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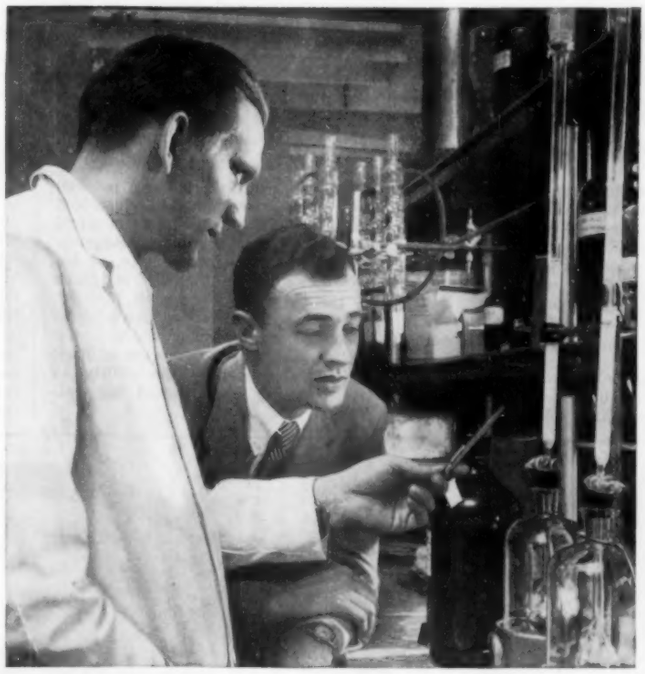

High energy rations require more NIACIN to convert extra calories into pounds of gain

Modern broiler rations supply more calories per pound of feed. So, today's broilers make greater and faster gains on less feed. With the greater energy content of these new rations, overall feed intake is decreased. Therefore, to assure the required vitamin intake, these rations must contain higher vitamin levels.

Take advantage of latest research by adding MERCK NIACIN or one of the Merck multivitamin mixtures containing niacin. These are available for all types of poultry and livestock rations—designed for precision in handling and economy in shipping and storing.

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RECOMMENDED FOR HIGH CALORIC RATION

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Manufacturing Chemists
RAHWAY, NEW JERSEY

dling, both in the mill and on the farm, push-button mills and none of us are so foolish as to think that mechanical progress will cease in 1956.

Big Distribution Changes Expected

But how about distribution? It is my belief that we may see even more changes in distribution than in some of the other branches of our industry.

Why? Because our customers are changing. We are seeing more and more specialization, which means larger farm units. In this area the turkey business already has moved largely into the hands of big operators. It's happening with broilers and may be just ahead with layers.

Milk is being picked up from dairy farms with bulk tank trucks which fit better into larger dairy operations.

The hog raiser with just a few sows doesn't find it practical to set up the farrowing, self-feeding, water heating and other equipment that the big producer uses. As a result, the smaller operator finds that his costs are higher. Many are specializing in grains and leaving the hog business to the more efficient operator.

This is happening around us now in grain farming because the larger models of farm equipment are more efficient but their cost requires more acres to plant, cultivate and harvest.

Dealers Will Grow

As livestock and poultry production units grow in size, the feed dealer will face a challenge of equal growth. This doesn't necessarily mean a growth in the size of his warehouse or his facilities so much as the growth of the man himself; his vision, his alertness, his adaptability to constructive change, the willingness to pay the price of hard work and especially the ability to train, inspire and reward his employees.

Statistics already show that we are getting fewer farmers on larger farms. I believe that we will see fewer and stronger feed dealers. Ten, 15 or even 20% of the dealers now "handling" feed may drop out, but business will be better for those who remain and who have the capacity to grow.

Service a Must

Service-on-the-farm will be a must. That means training. After all, if a man is worth being on the payroll, isn't he worth developing? The dealer of the future will send trained men on planned routes for farm selling and service. Much of the success of portable grinding and mixing units is due to regular contacts with the farmer, on the farm.

The feed dealer of the future will do a larger volume. He may need more working capital. He will watch his accounts closely, but because of his efficiency he will find credit easier to get, either from his local bank or elsewhere.

The successful dealer of the future will not be an in-and-out advertiser. He will plan his advertising carefully and follow through. It will be budgeted.

The successful dealer will handle related items such as feeders, watering equipment, sanitation products and merchandise that will help the farmer get better results with the feed he buys.

Will all this be worthwhile? Will there be enough profit to justify the effort? The answer is **YES**.

That sounds like a rather positive statement. I always want to question people that sound positive and anyone has a right to question my statement.

I am so sure because I know some dealers that today are thinking and operating what you might say "out in front." They are on a 1957 or 1958 basis right now, they are making more money than they ever did before and they are getting greater satisfaction from their work.

They grow animals in their store or in pens immediately outside. They know what their feeds can do and they can give service on the farm that will get top results. They are a very important part of their agricultural community. They are helping to increase the feeding efficiency and the financial returns of their customers.

Naturally they are sharing in the improved financial situation of their customers and they will continue to do so. You will find they are tall men, short men, and old men and young men, bushy-haired and bald, but they all have one trait in common. They are looking ahead, thinking ahead and acting ahead.

McKesson & Robbins Names New Manager

CHICAGO—William R. Bates has been appointed manager of the Chicago chemical branch of the McKesson & Robbins, Inc., chemical department with headquarters at 540 West Randolph St., Chicago, it was announced by C. J. Turriff, district manager of the company's north central chemical district.

Mr. Bates has been with the McKesson organization since 1951, beginning as a salesman for the Chicago chemical branch, and later serving as manager of the Milwaukee branch. Mr. Bates is a graduate of the University of Wisconsin school of commerce. He served in the Army for three and a half years during World War II, and prior to joining McKesson, was employed by the W. H. Barber Co., Chicago, for five years.

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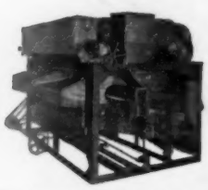
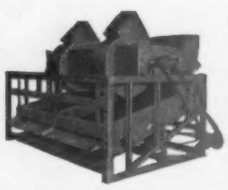
BAGGING SCALE

Light in weight, easily portable . . .
fast, accurate weighing up to 200 lbs.

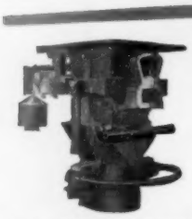
The Eureka OK Bagging Scale is speedy, accurate and simple to operate. Anyone can operate it . . . and its semi-automatic features enable operator to weigh and bag materials at an exceptional rate. One slip-on motion attaches bag securely and releases automatically at a touch of a lever. You'll like the OK Scale too because it's easily portable. By means of optional accessories (tubular supporting frame equipped with casters, or OK Scale Holders) one OK Scale can be used to serve several hoppers or bins. Made in two models: Model A with bag bell and rubberized ring for holding cotton or burlap bags; Model B with bag clamps as shown above, for holding cotton, burlap or paper bags, including multiwalls. Why not get all the specifications; see how little the cost . . . write for Bulletin 502.

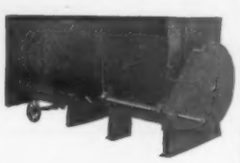

Super Cleaner—Receiving Separator


Hi-Capacity Receiving Scalper

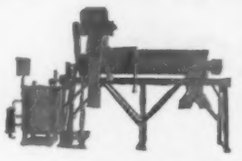
Vertical Batch Mixer

Corn Cutters and Gruders


OK Bagging Scale—Series A, B


Horizontal Batch Mixer

Oat Crimper—Single Pair Roller Mill


Duplex Agitator Molasses Mixer

The Eureka trademark in Flour, Feed, Seed, Grain and Cereal Machinery and Equipment is like the Continental *Mark II* in cars. It's the recognized symbol of a superior product.

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CONVENTION CALENDAR

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings a new procedure has been established in making up this department. The listings added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

1957

Feb. 4-5 — Cottonseed Processing Clinic; Southern Utilization Research Branch, U.S. Department of Agriculture, New Orleans, La.; chm., E. A. Gastrock, 1100 Robert E. Lee Blvd., New Orleans, La.

April 2-4—Louisiana Market Poultry Show and Chicken of Tomorrow Contest; Bentley Hotel, Alexandria, La.; chm., Clyde Ingram, extension poultryman, Louisiana State University, University Station, Baton Rouge, La.

April 3—Purdue Egg Day; Purdue University, Lafayette, Ind.; chm., David D. Jackson, extension poultryman.

April 8-10 — American Association of Feed Microscopists; Phoenix Hotel, Lexington, Ky.; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

May 5-7 — Louisiana Poultry Improvement Assn.; Frances Hotel, Monroe, La.; chm., Clyde Ingram, extension poultryman, Louisiana State University, University Station, Baton Rouge, La.

June 6-8 — Canadian Feed Manufacturers Assn.; Saskatoon, Sask.; sec., A. J. Bunn, Intercontinental Packers, Ltd., Saskatoon, Sask.

● ● ●

Jan. 7-8 — Kansas Formula Feed Conference, Kansas State College, Manhattan; chm., F. W. Atkeson, head of department of dairy husbandry, Kansas State College, Manhattan.

Jan. 8-10 — National Turkey Federation, Cincinnati, Ohio; exec. sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 11-12—Kansas Seed Dealers Assn.; Hotel Broadview, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

Jan. 13-15—New Mexico Grain & Feed Dealers Assn.; Hilton Hotel, Albuquerque, N.M.; exec. sec., H. B. Hening, P.O. Box 616, Albuquerque, N.M.

Jan. 14-15—Northwest Retail Feed Assn.; Hotel Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis 15, Minn.

Jan. 14-16—Conference on Processing of Cottonseed Meal as Related to Its Nutritive Value; Southern Utilization Research Branch, U.S. Department of Agriculture, 1100 Robert E. Lee Blvd., New Orleans, La.; chm., Dr. A. M. Altschul, Southern Utilization Research Branch, 1100 Robert E. Lee Blvd., New Orleans 19, La.

Jan. 17-18—Arkansas Feed Manufacturers Assn., Marion Hotel, Little Rock, Ark.; sec., T. E. Mosley, P.O. Box 149, Little Rock, Ark.

Jan. 20-22—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis; sec., Fred K. Sale, 600

Let's take a new look at POLYSTAT

MULTI-CHEMICAL FEED ADDITIVE
AFFORDS
BROAD DISEASE PROTECTION
FOR CHICKENS AND TURKEYS

DR. SALSBURY'S
POLYSTAT
MULTI-CHEMICAL,
BROAD-RANGE
DISEASE PROTECTANT
FOR CHICKENS
AND TURKEYS

"Broad spectrum" is a descriptive term applied to certain drugs and feed additives. It means that they are effective against widely different damaging disease organisms.

Polystat, with its combination of chemicals (each effective against specific diseases), is truly a broad-range additive. It is a protectant against the following diseases and conditions:

COCCIDIOSIS
— all types in chickens and turkeys.
TYPHOID
— in chickens and turkeys.
PULLORUM
— affords a good measure of protection in chicks and poults.
WORMS
— large roundworms and tapeworms.
HEXAMITIASIS
— in turkeys.
BLUECOMB
— in turkeys.

In addition, Polystat *stimulates growth and improves feed conversion.* Its effect on subclinical (unseen) disease and stress factors is indicated by the improvement in flock health, growth, and production.

Everyone connected with the poultry industry knows disease problems can be complex. We who work directly with diseases are constantly discovering new facts and concepts, such as the effects of stress on the physiology and, therefore, the disease resistance of the bird.

You in the feed industry are certainly aware of the increasing need for preventive, therapeutic, and supportive mixtures.

Clearly, with the bewildering complexity of diseases and stress factors, the poultryman now needs protection along a broad front. This is why I urge you to take a new look at Polystat.

Polystat, a multi-chemical product, affords the broad disease protection that poultrymen need. It helps prevent coccidiosis, worms and hexamitiasis, and also stimulates growth. Recently, we have discovered that Polystat also offers protection against pullorum, typhoid, and turkey bluecomb.

All these specific disease-preventing properties add up to effectiveness against a broad range of organisms from Salmonella bacteria to protozoans and worms.

The effect of Polystat on growth and on feed efficiency indicates that it reduces subclinical disease and minimizes stress factors.

Polystat sometimes is compared with additives that only prevent coccidiosis, or that only control worms, or that only stimulate growth. None of these comparisons can be valid, for Polystat is more than a coccidiostat, more than a worm preventive, more than a growth stimulant. Polystat is in fact many feed additives in one!

I know your customers will be enthusiastic about the broad disease protection Polystat affords.

I believe you too will appreciate the broad-range benefits of Polystat. It simplifies your feed-additive program. You do not need to include a separate coccidiostat, a separate wormer, or a separate growth stimulant. With Polystat, you have all in one — an additive that improves the efficiency of your poultry feeds. It's worth more because it does more.

This has been but a brief new look at Polystat. To get the full picture, I invite you to write for Polystat Feed Manufacturers Guide No. 7-A.

Sincerely,

John H. Salsbury D.V.M.

Vice President and General Manager

DR. SALSBURY'S LABORATORIES, Charles City, Iowa

recommend, promote and profit from
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Look to Fulton BAG & COTTON MILLS First

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Victoria Products and Grain
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Jan. 22-23—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; Irving J. Mork, North Dakota Agricultural College, State College Station, Fargo, N.D.

Jan. 23-24 — Massachusetts Dairy Farmers Seminar; University of Massachusetts, Amherst, Mass.

Jan. 24-26—Boston Poultry Show and New England Poultrymen's Conference; Mechanics Bldg., Boston; chm., Dr. Alfred Van Wagenen, Northeastern Poultry Producers Council, 10 Rutgers Place, Trenton, N.J.

Jan. 28-30 — Southeastern Poultry & Egg Assn.; Dinkler-Plaza Hotel, Atlanta; exec. sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Jan. 30-Feb. 2—American Dehydrators Assn., Edgewater Gulf Hotel, Edgewater Park, Miss.; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City, Mo.

Jan. 31-Feb. 1—University of New Hampshire Poultry Health Conference; University of New Hampshire, Durham, N.H.; chm., Prof. W. C. Skoglund, Poultry Dept.

Feb. 4-6—Assn. of Southern Agricultural Workers, Birmingham, Ala.

Feb. 5-6 — Hoosier Turkey Trot; Purdue University; sec., David D. Jackson, Indiana State Poultry Assn., Turkey Dept., Poultry Bldg., Purdue University, Lafayette, Ind.

Feb. 7-8—Oregon Animal Industry Conference; Oregon State College, Corvallis; chm., Dr. J. R. Parker.

Feb. 10-12—Wyoming Grain, Feed & Seed Dealers Assn., Casper; sec., Everett L. Berry, P.O. Box 118, Sheridan, Wyo.

Feb. 14-15 — Washington State Feed Assn.; Olympic Hotel, Seattle; sec., J. G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 14-15 — Utah Feed Manufacturers & Dealers Assn.; Brigham Young University, Provo, Utah; sec.-treas., Dr. Lawrence Morris, Animal Husbandry Dept.

Feb. 15-17—Institute of American Poultry Industries Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; pres., Cliff D. Carpenter, 221 North LaSalle St., Chicago 1, Ill.

Feb. 17-19 — Midwest Feed Manufacturers Assn., Broadmoor Hotel, Colorado Springs, Colo.; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 18 — New Mexico Feeders Day; New Mexico A&M College, State College, N.M.; chm., J. H. Knox, animal husbandry department.

Feb. 19-20 — Virginia Polytechnic Institute Nutrition School for Feed Men; Hotel Roanoke, Roanoke, Va.; chm., Paul M. Reaves, department of dairy science, VPI, Blacksburg, Va.

Feb. 24-26 — Ohio Grain & Feed Dealers Assn.; Neil House Hotel, Columbus, Ohio; sec., G. E. O'Brien, Ohio St., Greenville, Ohio.

Feb. 24-26—Colorado Grain, Milling & Feed Dealers Assn.; Denver, Colo.; sec., R. B. Kelly, 714 Cooper Bldg., Denver 2, Colo.

March 13—Distillers Feed Conference; Sheraton-Gibson Hotel, Cincinnati, Ohio; exec. director, Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

March 13-17 — Grain Processing Machinery Manufacturers Assn.; Edgewater Gulf Hotel, Edgewater Park, Mississippi; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

March 14-15—Oregon Feed & Seed Dealers Assn., Multnomah Hotel, Portland; mgr., Huss Hayes, Lewis Bldg., Portland 4, Ore.

March 14-17 — Pacific Dairy &

(Continued on page 28)

BUSINESS MANAGEMENT CONSULTANTS
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We bring to your business an objective, outside viewpoint; unhampered by company tradition, and unrestricted by any tendency to "just leave things alone, and maybe the problem will go away."

You benefit from our 75 years of combined experience in active management functions in the feed industry.

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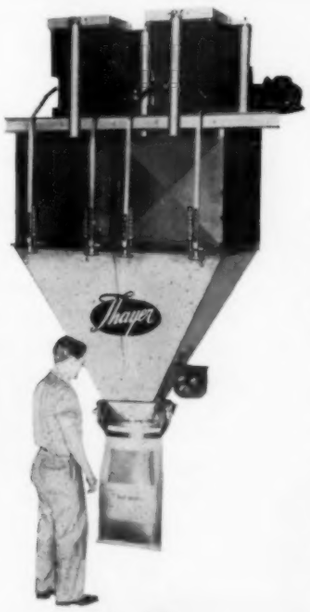
3615 Olive Street — Phone—Jefferson 5-0715 — St. Louis 8, Mo.

Watch your overweights—

they can cheat you out of YOUR PROFIT!



You are in this feed game to make money. Don't cheat yourself by overfilling packages. *You can get accuracy* without sacrificing speed. The 1000N2 Thayer Filling Scale is designed to be accurate within one or two ounces while filling mash or pellets at 20 charges per minute — molasses or alfalfa at 16 per minute . . . and it can be switched from one type to another without loss of accuracy. Automatic controls are within reach of the operator who can change the scale from 25 to 100 lbs. or other weights instantly.

THAYER PLATE LEVERAGE SYSTEM GUARANTEED ACCURATE FOR LIFE

We invite your investigation of this simple, patented leverage system that *neither dust and dirt nor the usual shocks and vibration can harm.* Please write THAYER SCALE AND ENGINEERING CORP.

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Only BACIFERM gives you all these values:

- **Highly effective bacitracin antibiotic content**
- **Longer life in the digestive tract**
- **Effective control of harmful bacteria—before they can escape into the tissues**
- **Vital selective action that encourages beneficial bacteria**
- **Extra vitamins and growth factors**
- **Effective appetite stimulation and promotion of growth**
- **Economy—25% lower cost than the tetracycline-type antibiotics**

...offering you high profits and assuring your customers full effectiveness at lower cost.

Baciferm Maintains Protection Where it is Needed Most . . . in the Digestive Tract

Evidence indicates that the action of antibiotics—when added to feed or drinking water—is confined to their effect on bacteria in the digestive tract.[1, 2] Most antibiotics are lost from the digestive tract, leaving most of it unprotected. But it is generally agreed that bacitracin stays in the tract longer than other antibiotics, thus maintaining an effective antibiotic concentration throughout the entire digestive tract.

This means bacitracin controls harmful bacteria before they can escape into tissues, and, unlike some costly antibiotics, the bacitracin in Baciferm does not hinder growth of beneficial bacteria.[3]

In Poultry, Baciferm Controls Secondary Invaders . . .

Bacitracin has proved effective in the prevention and treatment of blue comb, air sac disease (CRD), infectious sinusitis and non-specific enteritis.[4, 5, 6] A top-performing antibiotic, bacitracin assures quick control of dangerous secondary invaders. Its content of this proven antibiotic makes Baciferm an antibiotic supplement that measures up to any demand. You will make lasting friends

at low cost

of your customers by using Baciferm in all of your high-level poultry feeds.

In Swine, Baciferm Controls Scours . . .

Primary cause of black scours are disease-causing strains of Vibrio bacteria. And tests show that bacitracin is the *most effective* antibiotic in fighting these strains.[7, 8] Other tests show clearly that bacitracin, because it provides protection throughout the entire digestive tract, is effective in many diarrheas and dysenteries where other medication has failed.[9, 10] Also, a series of rigidly-controlled tests reveals that when swine scours are treated by bacitracin, the recovered animals are more likely to become thrifty.[11]

Supply your customers with bacitracin by recommending economical Baciferm. You help your customers make more profit. By using Baciferm supplements to combat scours, you'll be doing your customers—and your business—a service.

Added Benefits Secured with Baciferm

Baciferm provides vitamins, amino acids, unidentified growth factors.

Baciferm stimulates appetites[12]. . . bolsters the normal body defenses against diseases of the digestive tract[13]. . . does not develop resistant bacterial strains.[14]

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1. Elam, F. F., Jacobs, R. L., Tidwell, W. L., Gee, L. L., and Couch, J. R.: Possible Mechanism Involved in the Growth-Promoting Responses Obtained from Antibiotics, J. Nutrition 49:307 (Feb.) 1953.
2. Stokstad, E. L. R.: Antibiotics in Animal Nutrition, Physiol. Rev. 34:25 (1945); Biol. Abstr. 28:21737 (Sept.) 1954.
3. Jukes, T. H.: Antibiotics in Nutrition. Antibiotics Monograph 4, p. 90. Medical Encyclopedia, Inc. New York, N. Y.
4. Romoser, G. L., Shorb, M. S., Combs, G. F., and Pelczar, M. J., Jr.: Effect of Antibiotics and Diet Composition on Cecal Bacteria and Growth of Chicks. Antibiotics and Chemotherapy 2:42 (Jan.) 1952.
5. Antibiotic Regulations, Food and Drug Administration, U. S. Department of Health, Education, and Welfare. Title 21, Section 146e. 425 (F) (4).
6. Smyser, C. F., Jr., Cleverdon, R. C., Kulp, W. L. and Matterson, L. D.: Effect of Dietary Antibiotics on Number of *Clostridium perfringens* in Feces of Chickens. Antibiotics and Chemotherapy 2:363 (July) 1952.
7. Graham, R., Boley, L. E., and Woods, G. T.: Bacitracin in Necrotic Enteritis of Swine. North Am. Vet. 31:736 (Nov.) 1950.
8. Boley, L. E., Woods, G. T., Hatch, R. D., and Graham, R.: Studies on Porcine Enteritis. II Experimental Therapy with Sulfathalidine, Sulfamethazine, Sodium Arsanilate, and Bacitracin in a Natural Outbreak of Swine Dysentery, Cornell Vet. 41:231 (July) 1951.
9. Konde, W. N.: Oral Bacitracin in Diarrheas, North Am. Vet. 30:766 (Dec.) 1949.
10. Unpublished Reports. Commercial Solvents Corporation, Nutritional Research Farm.
11. Konde, W. N.: Further Investigation of Oral Bacitracin in Diarrheas. North Am. Vet. 33:36 (Jan.) 1952.
12. Thayer, R. H., and Haller, V. G.: Antibiotics and Nitrogen Utilization in Growing Cockerels, Poult. Sci. 34:97 (Jan.) 1955.
13. Meleney, F. L., Johnson, B. A., and Teng, P.: Further Experiences with Local and Systemic Bacitracin in the Treatment of Various Surgical and Neurosurgical Infections and Certain Related Medical Infections. Surg. Gynec., and Obst. 94:401 (April) 1952.
14. Meleney, F. L., Altemeier, W. A., Longacre, A. B., Pulaski, E. J., and Zintel, H. A.: The Results of the Systemic Administration of the Antibiotic Bacitracin, in Surgical Infections. A Preliminary Report. Ann. Surg. 128:714 (Oct.) 1948.

For further information, write:

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March 17-18—Quad-State Convention; Martin Hotel, Sioux City, Iowa; sec., Don Suttie, Sioux City Grain, Feed & Seed Assn., Box 341, Sioux City.

March 21-22 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm., Dr. G. Lynn Romoser, Department of Poultry Husbandry, University of Maryland, College Park, Md.

April 4-6—Animal Health Institute, aanual meeting; Greenbrier, White Sulphur Springs, W. Va.

April 10-11—Texas Feed Manufacturers Assn.; Gunter Hotel, San Antonio, Texas; sec., Ben E. Schmitt, 528 Bewley Bldg., Ft. Worth, Texas.

April 12-13—Texas Grain & Feed Dealers Assn.; Gunter Hotel, San Antonio, Texas; sec., Ben Ferguson, 614 Meacham Bldg., Ft. Worth 2, Texas.

April 25-27—Kansas Grain & Feed Dealers Assn., Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 26 — Indiana Cattle Feeders Day; Purdue University, Lafayette, Ind.; chm., W. M. Beeson, Department of Animal Husbandry, Purdue University, Lafayette, Ind.

April 26-May 1—National Fisheries Institute; Edgewater Beach Hotel, Chicago; Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 1-3 — American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec.-treas., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 19-20 — Missouri Grain, Feed & Seed Assn., Hotel Connor, Joplin, Mo.; sec., D. A. Meinershagen, Eagle Mill & Elevator, Higginsville, Mo.

May 20-21 — National Cottonseed Products Assn.; Shoreham Hotel, Washington, D.C.; sec., John F. Moloney, 19 S. Cleveland St., Memphis 4, Tenn.

June 9-11—Indiana Grain & Feed Dealers Assn.; French Lick-Sheraton Hotel, French Lick, Ind.; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

June 10-11—Eastern Federation of Feed Merchants; Hotel Commodore, New York; exec. dir., Austin W. Carpenter, Sherburne, N.Y.

June 11-12 — Montana Nutrition Conference; Montana State College, Bozeman; chm., O. O. Thomas, Animal Industry Department.

June 17-18—Georgia Feed & Poultry Conference; Dinkler Plaza Hotel, Atlanta; sec., Will L. Kinard, 3240 Peachtree Road Bldg., Room 210, Atlanta 5, Ga.

June 17-19—Association of Southern Feed & Fertilizer Control Officials; Dinkler-Tutwiler Hotel, Birmingham, Ala.; sec., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky.

July 16-19 — American Poultry & Hatchery Federation; Municipal Auditorium, Kansas City; sec., Don M. Turnbull, 521 E. 63rd St., Kansas City 10, Mo.

Sept. 11-12—Michigan State Hatchery Conference; Michigan State University, East Lansing, Mich.; chm., Harry E. Hathaway, Michigan State Poultry Improvement Assn., East Lansing, Mich.

Sept. 11-13 — American Pet Food Manufacturers; Drake Hotel, Chicago; sec., R. L. Kathe, APFM Division of American Feed Manufacturers Assn., 53 W. Jackson Blvd., Chicago 4, Ill.

Oct. 3-4—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, poultry science department.

Oct. 7-9 — Northeastern Poultry Producers Council Poultry Exposition and Convention; Farm Show Bldg., Harrisburg, Pa.; chm., Alfred Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

Oct. 14-16—Virginia State Poultry Federation; Hotel Roanoke, Roanoke, Va.; chm., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 16-17—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; exec. sec., L. E. Bopst, Room 036 New Chemistry Bldg., University of Maryland, College Park, Md.

Robert L. Redmond

APPOINTEE—A recent appointee as sales representative of the California Pellet Mill Co. is Robert L. Redmond. A native of Louisville, Mr. Redmond received his engineering degree from Purdue University and worked in the machine tool industry prior to joining the California Pellet Mill Co. Headquarters are maintained in the Memphis office, 260 Paul Brown Building, Memphis, for Arkansas, Louisiana, Mississippi, western Tennessee and western Alabama.

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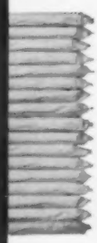

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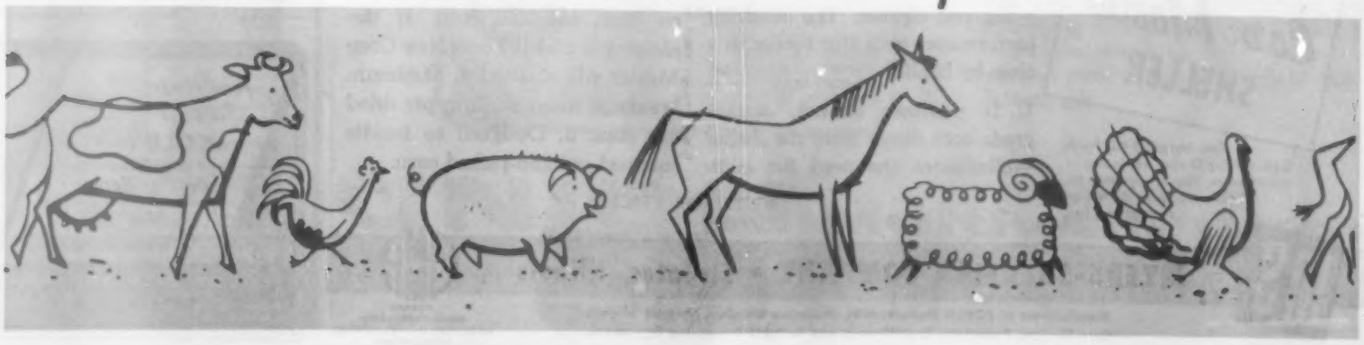

Effects of Fiber Content of Ration On Milk Production and Hot-Weather Discomfort of Producing Cows

● R. E. Leighton and I. W. Rupel, Texas Agricultural Experiment Station, College Station, Texas; Progress Report 1889 (August, 1956).

Feeding experiments were conducted at College Station in 1955 to test the popular belief that light, bulky rations are more desirable for dairy cows in hot weather than more concentrated rations.

The three-period, doubled-reversal feeding trial was conducted with 20 producing dairy cows equally divided into two lots. Each lot contained 6 Holsteins and 4 Jerseys. They were fed diets equal in protein and net energy but markedly different in fiber.

On the higher fiber diet, the cows consumed an average of 1.1 lb. of alfalfa hay and 2.4 lb. of sorghum silage per 100 lb. body weight, supplemented by a grain mixture containing 10.4% fiber. On the low-fiber diet, the cows were limited to 0.75 lb. of alfalfa hay and 1.5 lb. of silage per 100 lb. of body weight and were fed a grain mixture containing only 4.1% fiber. There was an average of 64% more fiber in the higher-fiber diet than in the low-fiber diet.

There was no significant difference in the milk production of the cows on the two diets during a mild weather trial, but during two four-week periods in July and August, highly significant differences were observed in milk production and in body temperature and in the respiration and pulse rate. On the low-fiber diet, the cows' average daily milk production was 2.16 lb. higher, their rectal temperatures 0.31 degree lower and their respiration and pulse rates 6.77 and 4.46 per minute slower, respectively, than when on the higher-fiber diet.

There was noticeable increase in the body weights of the cows when they were changed from the low-fiber to the higher-fiber diet, but almost all the increase occurred during the first week, indicating that the gain in weight was caused by an increase in the contents of the rumen and other organs of the gastro-intestinal tract. There was a corresponding decrease when they were changed from the high to the low-fiber diet.

If the increase in weight represents additional feed in the rumen and other organs, the additional heat of digestion would be an important factor in the hot-weather discomfort of the cattle. A greater heat of fermentation and more heat released by the muscular activity of the digestive organs are specific factors which result in a greater heat increment when cows are fed the high-fiber ration. Possibly there are other reactions resulting from the additional demands of the digestive organs which reduce the animal's capacity to adjust to high environmental temperatures. The cows fed the low-fiber diet were always hungry and even on the hottest days never refused their feed. Several cows on the high fiber diet refused a major portion of their ration at the afternoon feeding during the hottest periods.

COMMENTS:

Hot weather has always had an adverse effect on milk production even in the northern climates. While efforts have been made to counteract this drop in production, none have really been successful. However, based on the results of this study, it appears that the dairymen can offset a drop in production during hot weather at least in part by reducing the amount of roughage fed and feeding a more concentrated grain ration.

The heavy grain feeding period for dairy cows has always been the winter months. It may be that heavy grain feeding has a place in the hot summer months as well. Some good promotional work might do a lot to increase dairy feed sales during these months.

●

Feed Additives for Stimulating Milk Production

There have been some reports recently on the use of certain substances in feed to increase milk production.

A U.S. Department of Agriculture report, in its publication called Agricultural Research, said tests by USDA and Montana researchers indicate that the practical value of thyroprotein in feeds for dairy cows is limited. They said the tests indicate that the drug has little value for most herds.

Reporting on certain experimental work, the USDA researchers said there was a widely varying response to the drug among individual cows. For this and other reasons, they said, it appears that results are unpredictable in the average size herd. Profit above feed costs was said to have been increased for cows that gave the best responses to thyroprotein, but reduced for cows giving average or poor responses.

The report said, however, that

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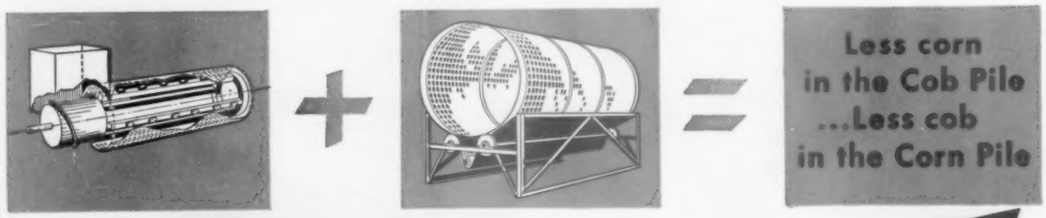

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thyroprotein might be used to advantage by large commercial dairy farms where it would serve as a means of stimulating milk production during periods of normally low production when milk prices are high and when marketing bases are being set up.

(Another more detailed story on the USDA report and comments and information on this and other work will be found elsewhere in this issue of Feedstuffs.)

It is interesting to note efforts being made to find means of increasing milk production. Unlike feeds for other types of livestock, no dairy feed additive, to increase milk production, has yet come into widespread use.

Hormone experimentation similar to that done with beef cattle is now in progress, but encouraging results have not yet been reported.

An interesting study was reported recently by researchers at Cairo University of Egypt using buffaloes. They found that the feeding of 120 milligrams of potassium iodide to these animals resulted in a 20% increase in milk production and prolongation of the lactation period. They also said that undesirable side effects on metabolism, such as accelerated respiration, and pulse rates and increases in body temperature, were not observed from potassium iodide feeding.

It may be viewed as surprising that the wide use of iodized salt in this country has not resulted in reports of similar stimulation of lactation of the bovine.

This study does, however, point up the importance of some source of iodine in dairy feed whether it be in the form of iodized salt or potassium iodide in a trace mineral mix. The need for iodine is especially acute in the Great Lakes and western areas.

As to the amounts required, the National Research Council recommends the use of iodized salt containing 0.015% iodine incorporated at the 1% level. When the iodized salt is stablized to retard loss of the iodine, a product containing 0.0076% iodine (0.01% potassium iodide) will provide the needed iodide at 1% of the grain ration.

Sack Sets Record; Used for 82 Years

DUNDEE, ENGLAND — Eighty two years of service to agriculture has been given by a jute twill sack recently recovered from the home-grown grain trade.

The sack, still in good serviceable condition bears the date stamp 1874 —the year Disraeli became prime minister—and the name brand of a Leominster firm which went out of business shortly after that date.

Length of working life is one of the features of jute sacks, but this particular sack has probably set up a record. It was picked out of a consignment of grain sacks used during this year's harvest, in view of its longevity, and sent to the research laboratory of a Dundee jute firm where the effects of usage on the fabric were studied. The research report was that the sack was still capable of further service.

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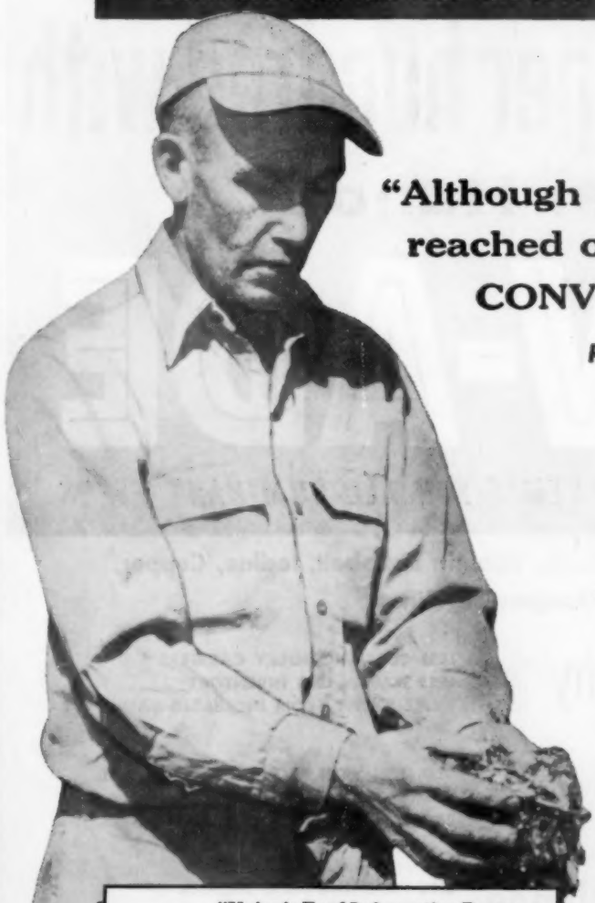

"Although automation hasn't reached our farm, MULTIWALL CONVENIENCE HAS"

Raymond S. Wiley, farmer, Indianola, Iowa

"One of the labor-saving devices we most appreciate around here is the 50-lb. Multiwall bag for feed," says Mr. Wiley who, with his wife, farms 175 acres in Iowa. "Multiwalls are easy to handle. They keep their contents free-flowing until ready for use. And they're sanitary."

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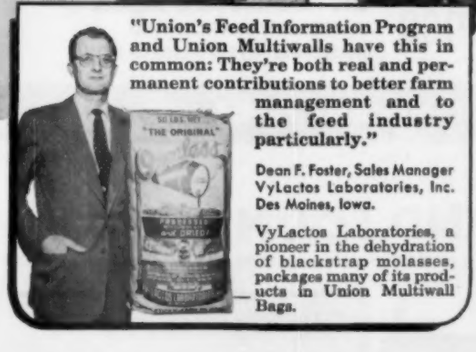
Mr. Wiley, a director of the Des Moines Co-op Dairy Association, does an outstanding feeding job. The butterfat average per cow per herd on his farm since 1951 has been from 550 to 620 lbs. He credits better feeds and feeding practices, follows new developments in farm journals and over the air. Union's Feed Information Program is one of the services that makes this data available to him.

This program is part of Union's emphasis on *service* . . . to farmers, to feed dealers, to feed processors. Service makes Union Multiwalls one of your best bets too. You can count on well-made bags, packaging and merchandising skill, and a genuine desire to help you get the greatest possible return on your Multiwall investment.



"Union's Feed Information Program and Union Multiwalls have this in common: They're both real and permanent contributions to better farm management and to the feed industry particularly."

Dean F. Foster, Sales Manager
VyLactos Laboratories, Inc.
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Comer Kerce L. D. Bowerman Ralph W. Seaman

Hales & Hunter Co. Makes Appointments

CHICAGO—A number of personnel changes have been announced by the Hales & Hunter Co., Chicago.

Comer Kerce has been appointed personnel supervisor of Hales Mill, Chicago. Mr. Kerce is a graduate of Bradley University, did graduate work in industrial psychology at the University of Illinois and has served as personnel manager of the United States Air Conditioning Corp., Minneapolis, and the Portable Elevator Manufacturing Co.

Lloyd D. Bowerman has been promoted to mill manager, Red Comb Pioneer Mills, Inc., Mentone, Ind. He has been associated with Hales & Hunter since 1940. His experience includes quality control supervisor, Red Comb Pioneer Mills, Inc., Marshall, Mo., and assistant production supervisor, Hales Mill, Chicago.

Ralph W. Seaman, Washingtonville, N.Y., has been named sales representative in northern New Jersey. Mr. Seaman has a farm background and for five years was a salesman in the commercial feed business.

The promotion of James W. Boyd to mill manager, Red Comb Pioneer Mills, Inc., Springdale, Ark., is also announced. He has 10 years' experience in production and management and was superintendent at the Marshall, Mo., plant at the time of his promotion.

CALIFORNIA STORE MOVES

MODESTO, CAL.—The South Modesto Feed Store has moved recently to Crater Ave. in Modesto, Cal., in order to provide better service to customers, according to Lannie Duncan, owner and manager of the store.

NOW—Fortify your ruminant feeds for Less than 3¢ per hundred with Peter Hand* RU-V-ADE
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We look forward to a continuation of these highly regarded friendships and hope to make new friends in the coming year. It is our sincere wish that all of you enjoy happiness and prosperity throughout 1957.

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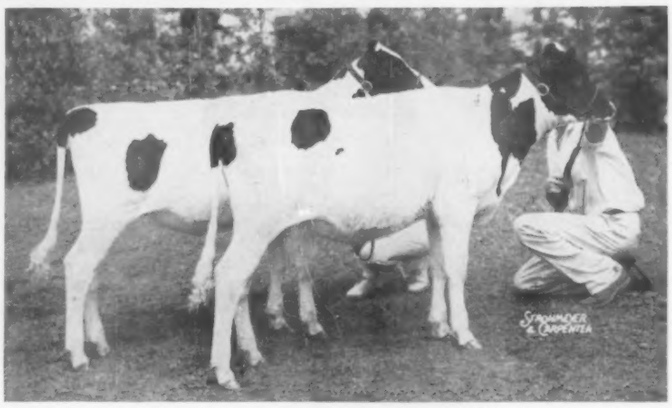

These identical twin calves were recently added to the herd at the dairy research farm of Beacon Milling Co., Cayuga, N.Y. Acquisition of these twins brings to four the number of sets of twins in the Beacon herd.

Identical twin calves — Rayside Cochran Marion and Rayside Cochran Mary, sire Sovereign Cochran, dam Rayside Chieftan Burcader — were recently purchased by the Beacon Milling Co., Cayuga, N.Y., for addition to its dairy research herd.

The calves were bred by R. B. Strickland, Nicholson, Pa., and were born Jan. 17, 1956. Beacon now has four sets of identical twins on its dairy research farm for use in research on dairy feed formulation and feeding programs.

Dr. Lew S. Mix, director of dairy research for Beacon, said that identical cattle twins were first described by Kronacher in Germany in 1932, and Dr. Gert Bonnier and his group began to collect them for experimental purposes in 1937. Investigation of identical twins started in the U.S. in 1947 at the University of Minnesota. With their value in research well recognized, there now are several identical twin cattle herds in the U.S. at the U.S. Department of Agriculture and other research centers. Scientists at the experimental centers are interested in purchasing identical twins, and USDA, among others, frequently points out this interest.

With the interest in identical twins increasing, Feedstuffs would welcome hearing from researchers who have cattle twins.

Dr. Mix said that identical twins have "tremendous value" for experimental work.

"The production data obtained with one set of identical twins have the same statistical significance as the data obtained from at least 20 unrelated cows," Dr. Mix said. "Twins are especially valuable for feeding experiments where it is desirable to measure two different feeds or feeding programs. Identical twins produce alike when fed and managed alike.

"Uniformity trials are frequently run on the same feed and management during the first lactation as additional proof that a given set of twins are identical. One set of Holstein twins recently finished their first lactation at the Beacon farm with 463 and 468 lb. of fat in 305 days, 2X.

"Identical cattle twins behave alike. They are usually found close to one another in the pasture. They have the same temperaments; they come in heat close together and frequently calve at the same time. Grazing habits are similar and the rate of milk letdown is the same."

Identical twins, Dr. Mix explains, result from the cleavage of one fertilized egg in such a manner that two resulting embryos have exactly the same genes or units of inheritance. Identical twins occur about once in 2,000 calvings. Ordinary or fraternal twins occur once in about 50 calvings.

Identification of identical twins is accomplished by two principal means —physical characteristics and by blood types or antigens.

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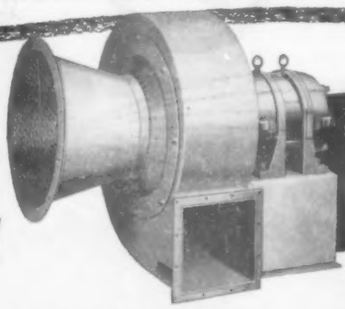

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it is today's most potent source of the Whey Factor

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a competitive edge . . . through faster growth, better conversion

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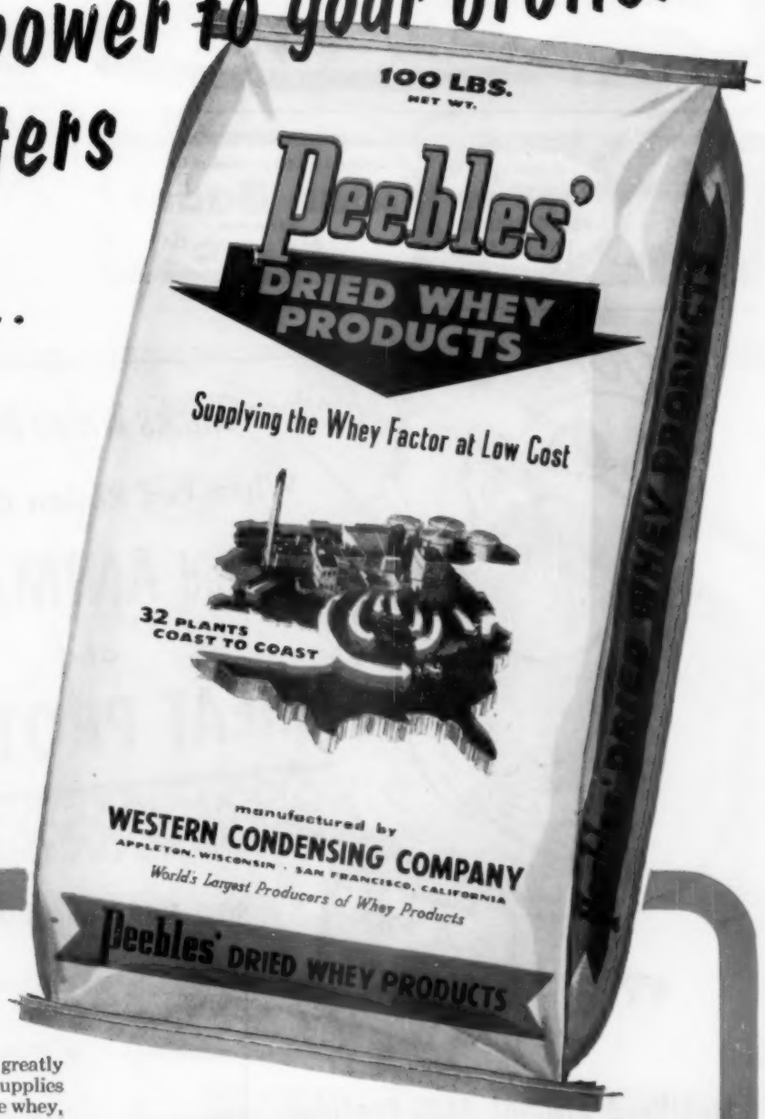
can be used at lower levels than straight whey



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Peebles' M-N-C is a spray-dried whey product that greatly improves broiler and growing feed performance. It supplies 50% more non-lactose nutrients than regular dried whole whey, and is the most potent and reliable of the reported sources of the *organic* Whey Factor.

M-N-C also appears to be the finest source of the recently reported *inorganic* or "ash factor." The concentration of these factors in M-N-C results in better growth and more efficient feed conversion than is possible with straight whey.

Peebles' M-N-C is made by an exclusive process that retains full potency of amino acids, often damaged or destroyed by high heat. Spray-drying of Peebles' M-N-C also promotes uniform distribution of whey particles in feeds.

Best of all, Peebles' M-N-C gives feeds this extra nutritional wallop at a savings. Just 2% Peebles' M-N-C supplies all the non-lactose nutrients of 3% whole dried whey — and because it's used at considerably lower levels, M-N-C permits the use of additional amounts of high energy ingredients. It boosts performance and sales-power . . . brightens your profit picture too.

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Peebles' LACTO-G is a pure, spray-dried whey product that meets the requirements for an all-around feed component to step up the effectiveness of calf, pig and poultry feeds. LACTO-G is a fine source of the Whey Factor and of lactose in situations where only one type of whey product can be used.

PEEBLES' WAY-SWEET

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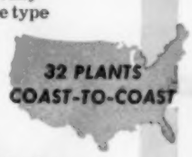
WAY-SWEET contains 80% lactose, the carbohydrate of choice for young pigs and calves. Rations fortified with WAY-SWEET have proved highly effective in speeding growth of young animals . . . at a cost well below that of other lactose sources, such as skimmed milk. WAY-SWEET is ideal for poultry conditioning feeds, as well.



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American Molasses Co. Promotes W. F. Tomz

NEW YORK — Frank C. Staples, president, American Molasses Co. of North Carolina, Inc., announces the recent election of William F. Tomz as vice president and treasurer of the company. Mr. Tomz was previously treasurer and manager of the Wilmington, N.C., office.

Mr. Tomz has been with the company since February, 1940, except for about two years with the U.S. Army in England and France.

The American Molasses Co. distributes blackstrap molasses to the feed trade from its Wilmington, N.C., terminal.

READY JAN. 1

IVESDALE, ILL. — Construction of a 80,000-bu. elevator for the Reeder & Horton Grain Co. at Sloan Station near here will be completed about Jan. 1. James Reeder is manager of the company.

Fred Roberts

Fred Roberts, Kent Nutritionist, Dies

MUSCATINE, IOWA—Fred Roberts, nutritionist with Kent Feeds, Inc., Muscatine, Iowa, since 1933, died recently in a hospital here. He was 68 years old.

Mr. Roberts was well known throughout the midwest as an authority on livestock and poultry nutrition, breeding and management. His work in the study of the genetics of purebred Aberdeen Angus cattle was recognized by purebred cattlemen throughout the country.

Mr. Roberts is survived by his widow, Ethel, and two children, Mrs. Thomas Nobis, Davenport, Iowa, and Lyman Roberts, Muscatine.

Virginia Feed Tonnage Declines Slightly

RICHMOND, VA. — A total of 766,019 tons of commercial feeds was sold in Virginia in the year 1955-56 as represented by the sale of inspection stamps and tonnage reporting system, announces C. F. Bruce, feed inspection supervisor.

This compares with 773,540 tons in 1954-1955 and the record 921,960 tons reported in 1943-44.

Give 'Em What They Want—
DEHYDRATED ALFALFA
● Put nutrient-rich DEHY in your mixtures . . . make easier sales, bigger profits! DEHY is nature's own vitamin-mineral-protein concentrate. Costs you less, helps produce better feeds.
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Modern Chicks Weigh More...Lay More
When Fed Ration Containing
Stabilized ANIMAL FATS
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Also in... DOG FOOD CATTLE and HOG FEEDS
50% MEAT and BONE MEAL Provide:
32 Times The Calcium
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18 Times The Fat
1.14 Times The Protein
. . . Found In Substitute Vegetable Products
Stabilized ANIMAL FATS Provide:
Twice As Much Energy Per Pound Than Any Other Feedstuff
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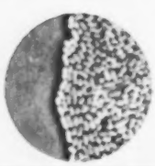
New bonus-benefit coccidiosis fighter

Puts more meat-making power in every bag of feed

New bīfuran is more than an efficient answer to coccidiosis problems. It's a modern coccidiostat with the built-in ability to improve feed conversion and maintain broiler growth while fighting off secondary infections. It helps your carefully manufactured feed do an even better job for the growers. That's why bīfuran is being so enthusiastically received by feedmen and broiler growers alike. Bīfuran helps eliminate the profit "stress" on broiler growers by fighting stress conditions in their birds . . . it helps broiler growers reduce their unit cost of production. Recent field tests show feed savings of up to 4 cents per bird with bīfuran fortified feeds.

What's more, bīfuran not only permits valuable cash savings on feed, but it keeps birds gaining at their expected rate . . . even stimulates growth when coccidiosis is present. This steady growth makes it easier for broilermen to plan for and hit the better markets . . . produces uniform birds that tip the scales where they want them to.

Any way you look at it, in today's broiler markets, bīfuran's bonus benefits can make the difference between satisfaction or disappointment in your feed's performance. For better grower satisfaction, take advantage of bīfuran's bonuses . . . add these extras to your feed.



Bacteria growing normally before treatment.

Distorted, disintegrated and dead bacteria after nitrofuran treatment.

Controls cocciodiosis by immunity development . . .

Bīfuran fights both cecal and intestinal coccidiosis while it helps birds develop solid lifetime immunity[2,5,6].

It's all made possible by the two-fisted way that bīfuran fights coccidiosis. First, bīfuran holds down growth and multiplication of the coccidia to ¼ normal . . . second, it cuts in half the "infecting" strength of surviving coccidia. Then, the bird's own body uses a controlled mild infection from these weakened coccidia to build up lifetime coccidiosis immunity. The result is positive protection against coccidiosis without the stresses and side effects of ordinary medication — important to broilers and replacement birds alike.

Fights vitality-sapping secondary infections . . .

Bīfuran attacks the secondary infections that often go undetected to lower feed performance.[4] The actual microscopic photographs at left demonstrate the action of nitrofuran drugs against these common disease bacteria.

Bīfuran combats germs by throwing them off feed and forcing them to starve themselves to death. No resistant bacteria emerge to fight back. The result: vitality-sapping secondary infections are controlled . . . no gain lags . . . but instead, thriftier birds that put on weight cheaper, for more profit.

Lifesaving bīfuran turns problems into profits

Your Hess & Clark representative has complete research data and information.

Improves feed conversion to give your customers more profit from every bird . . .

Feeding records speak for themselves . . . show that birds fed bīfuran-fortified formulas need less feed to make the weight.[1,2] For instance, when 1800 White Rock chicks were exposed to natural coccidiosis infections, the birds fed bīfuran-fortified feed required .33 pound less feed per pound of gain than birds given another widely used coccidiostat.[3] The birds receiving bīfuran in this test returned 4.26¢ more per bird than birds given the other coccidiostat. These are the kind of profit-making, bonus results that growers have a right to expect of a coccidiostat. Add up all the benefits of bīfuran and they total up to more profit per bird — and profits are the measuring stick your customers know best. That's why bīfuran is today's coccidiostat for today's broiler grower. It not only controls coccidiosis but shoulders more of the feed performance—and profit—load. And that's why more and more feedmen are discovering that when their feeds are fortified with bīfuran they measure up to the critical coccidiosis controlling and feed conversion standards today's growers expect. That's why it pays for feedmen — and growers — to switch to bīfuran, the bonus-benefit coccidiostat.

REFERENCES:

1. Cosgrove, A. S., Roberts, H. D. B., and Short, D. E.: Proc. 1st Nat. Symposium on Nitrofurans in Agr. (Sept.) 1956
2. Harwood, P. D., Stunz, D. K., and Wolfgang, R. W.: The Efficacy of a Nitrofuran Mixture as an Avian Coccidiostat, Research Department, Hess & Clark, Inc. (1956)
3. Harwood, P. D., Stunz, D. K., and Wolfgang, R. W.: The Optimum of Coccidiostat Activity. Unpublished Data, Research Department, Hess & Clark, Inc. (1956)
4. Dodd, M. C. and Stillman, W. B.: The In Vitro Bacteriostatic Action of Some Simple Furan Derivatives, Jrnl. of Pharm. and Exp. Therap. 82. (Sept.) 1944
5. Harwood, P. D.: A Preliminary Test of Synergism between Nitrofurazone and Furazolidone. Research Data, Hess & Clark, Inc. (May) 1955
6. Parker, E. L.: Personal Communication. (1956)

bifuran

Besides knocking out coccidiosis and giving growers the advantage of bonus benefits, bifuran makes easier feed handling and better feed merchandising possible for you. First of all, there's no risk involved in using bifuran-fortified feeds, even at twice the recommended level. It's nontoxic. And it's safe even if accidentally given to breeding or laying flocks. There are no adverse effects on egg quality, fertility, hatchability or rate of lay.

On the handling end . . . bifuran frees you from the worry of contamination. Accidental drug hangups are no problem. And bifuran can be fed right up to market time without danger of drug residues left in body tissue. It's used up as it works. There's no dangerous leftover.

Bifuran eliminates worry that your coccidiostat may upset feed conversion or cause other harmful side effects.

And best of all, you know bifuran will make broiler raising easier — and more profitable for your customers. That's why bifuran pays off in better feed sales and more grower satisfaction with your feeds. For more details on bifuran and its benefits, contact your Hess & Clark representative or the Feed Products Division.

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nitrofurams

germ killers that last from . . .

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Industry Hopeful of Moving Increasing Supply of Milk

CHICAGO — Intensive advertising and promotional efforts will prevent a buildup of the nation's milk surplus this year despite a production increase of more than 3.5 billion pounds over 1955, representatives of three leading dairy industry organizations reported to members of the national Agricultural Relations Council holding its annual meeting here.

Slightly more than half of the increased milk production will be taken care of by population gains with the remainder accounted for by greater per capita consumption, the dairy leaders said.

Making the report in the form of a panel discussion outlining results of U.S. dairy promotion activities were Lloyd H. Geil, director of public relations, National Dairy Council; Ray Alberts, membership director, American Dairy Assn.; and J. Carroll Bateman, director of public relations for the Milk Industries Foundation.

U.S. milk consumption has been increasing steadily since 1953 and should reach 356 or 357 pounds per person this year, it was explained. Increasing U.S. population will require an additional two billion pounds of milk and cream a year. This, together with gradually expanding per capita consumption, is expected to balance supply and demand by 1965, the panel predicted.

Approximately $60 million was spent by the dairy industry this year to advertise and promote the sale of milk and cream. This represents an increase of approximately 70% over the total spent in 1944, with dairy farmers themselves now supplying a significant part of the total spent.

New officers elected by the Agricultural Relations Council for the coming year include Louis H. Wilson, director of information, National Plant Food Institute, Washington, president; Walter Garver, agricultural specialist, U.S. Chamber of Commerce, Washington, vice president; and William Foreman, public relations department, National Cotton Council, Memphis, Tennessee, secretary-treasurer. John J. Lacey of the American Farm Bureau Federation is retiring president.

Fish Meal Output In U.S., Alaska Dips

WASHINGTON — The September, 1956, production of fish meal and scrap in the U.S. and Alaska totaled 29,252 tons, 1,359 tons (4%) less compared with the same month one year ago, according to Department of Interior records.

Menhaden production during September, 1956, amounted to 24,480 tons of meal and scrap—10% less than reported for the same month in 1955.

A total of 23.6 million pounds of condensed fish solubles was produced during September, 1956, an increase of 1.3 million lb. (6%) compared with the quantity reported for September, 1955.

The September, 1956, production of homogenized-condensed fish totaled 4.8 million pounds—an increase of 38% compared with the total manufactured during the same month of 1955.

Imports of fish meal into the U.S. during August, 1956, amounted to 4,898 tons compared with 4,974 tons imported during the same month of 1955.

Egg Day Planned

LAFAYETTE, IND.—Purdue Egg Day will be held at Purdue University April 3, it was announced by David D. Jackson, extension poultryman.

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Adding *Myvamix* to your feed won't run up handling costs at the mill, either. The vitamin is on a dry, non-dusting soy meal base that's as easy to handle as any material you use. And there's no need to worry about loss because *Myvamix* is stable despite heat, moisture, and long storage.

Want to know more about recommended levels of vitamin E? Exact costs? Write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • Charles Albert Smith Limited, Montreal and Toronto.

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Mineral and Amino Acid Requirements of Swine

By Dr. W. M. Beeson
Purdue University

MINERALS (Requirements based on "Nutrient Requirements of Swine," National Research Council and recent research data): Thirteen mineral elements—namely calcium, phosphorus, sodium, potassium, chlorine, magnesium, manganese, iron, copper, cobalt, iodine, zinc and sulfur—are required by swine. Only eight are usually critical in natural swine diets and need to be added in a supplement: Calcium, phosphorus, salt (sodium and chlorine), iron, copper (only for suckling pigs), iodine and zinc.

Calcium is deficient in all swine rations not containing large quantities of animal by-products such as meat-and-bone scraps, tankage or fish meal. Corn and other grains as well as the oil meals, are low in calcium. Ground limestone is the least expensive feed source of calcium, usually costing less than 1¢ lb. and containing about 38% available calcium. Excess calcium may reduce growth rate and increase the incidence of the disease, parakeratosis. **Vitamin D is essential for the utilization of calcium and phosphorus and can be supplied by sunshine if swine are outdoors, and by fish oils, irradiated yeast or sun-cured legumes indoors.**

Calcium requirement ranges from 0.55 to 0.65% of total ration. Feeds and/or supplements loaded with excess amounts of calcium will retard growth rate, reduce feed efficiency and produce skin dermatitis.

Phosphorus is relatively high in grains and protein concentrates and is usually low in molasses, beet pulp, pasture and roughages. Swine diets high in grain and plant protein supplements will usually contain from 0.25 to 0.30% phosphorus, 50% of which is "unavailable" in the form of phytin phosphorus. Phosphorus requirements range in a descending order with age from 0.6 to 0.33% of the total ration. A deficiency of phosphorus results in a reduction in growth rate, feed efficiency and blood phosphorus, and in severe cases abnormal bone development and impaired reproduction.

Based on research at Purdue (AH Mimeo 182-1956), the phosphorus supplements rank in the following order: Dicalcium phosphate and monocalcium phosphate equally good, followed by steamed bone meal, defluorinated rock phosphate; then Curacao Island phosphate and finally soft phosphate with colloidal clay the poorest.

EDITOR'S NOTE: Basic information on the mineral and amino acid requirements of swine is provided in the accompanying article by Dr. W. M. Beeson of the department of animal husbandry at Purdue University. Dr. Beeson outlines up-to-date knowledge on requirements for various minerals, and he discusses various aspects of amino acids in swine nutrition, including essential amino acids required by pigs, the relation of amino acid and protein requirements, and amino acid deficiencies in feedstuffs. This article is the text of a talk by Dr. Beeson at the Oklahoma Formula Feed Conference at Oklahoma A&M College.

Sodium and chlorine (salt) will be deficient in all common swine rations. Be sure that all animals have continued access to all the salt they want. In addition to being required for many body functions, salt increases the palatability of other minerals in a mixture. The dollar value of providing swine with adequate salt was shown in Purdue experiments conducted by Professor Vestal about 10 years ago. Rations of corn, a soy-alfalfa protein supplement, and a mineral mixture of equal parts of limestone and steamed bone meal were fed free-choice, with and without salt to fattening swine in dry lot and on pasture. In the dry lot trial, 1 lb. of salt saved 214 lb. of corn, 46 lb. of protein supplement and 27 lb. of minerals. Gains were doubled. On pasture, for each pound of salt consumed, there were 8 lb. of extra gain and a saving of $1.40 worth of feed.

Salt requirement is met by adding 0.5% to the complete ration or by supplying an equivalent amount daily in the protein or mineral supplement.

Potassium deficiency has never been observed in swine on practical rations. Natural feedstuffs contain more than adequate potassium; therefore, special supplementation is not indicated.

Magnesium is required, but no data is available on the amount or necessity for extra additions to practical swine diets.

Manganese deficiency is rare under average farm conditions and difficult to produce except with semi-purified diets. Manganese deficiency has the following effects: (1) no change in rate of gain or feed efficiency, (2) reduced skeletal growth and muscular weakness, (3) increased fat deposition, (4) irregular estrual cy-

IS YOUR ELEVATOR EQUIPPED TO MEET COMPETITION IN 1960 ?

Burlington Elevator Co. takes a "New Look" to the Future

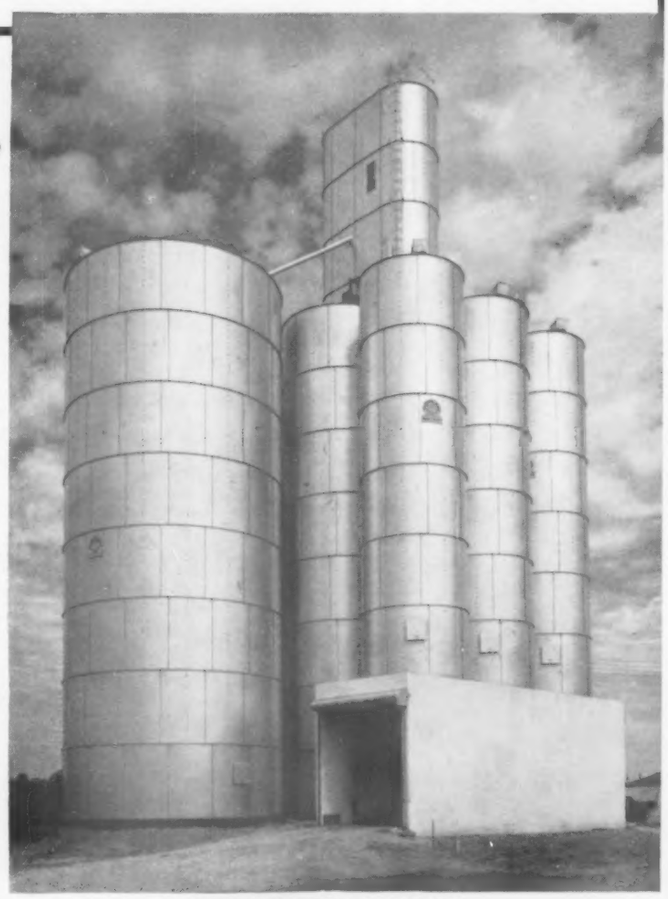
this Columbian Classifying-Blending-Storage Elevator looms high and handsome against the skyline at Hebron, Nebraska.

Modernization or even complete replacement of obsolete country elevators is a necessity if you are to meet today's expanded demands for service and tomorrow's competition. Modern blending and classifying requirements of growers, feeders and shippers are making old elevators unprofitable . . . often unable to serve all the needs of their customers.

Farsighted management realized this when, needing to expand their old elevator facilities, they looked to the future and called in Columbian engineers. Result: This modern, handsome 115,000 bu. bolted steel elevator, equipped with complete facilities for blending and classifying grains . . . ready to meet today's expanded opportunities for country elevator service.

Four 15 x 64 ft. receiving tanks are the main feature of this efficient modern grain handling system. Included also in this new elevator are three 12 x 48 ft. blending tanks plus two 26 x 64 ft. storage tanks and an obround headhouse. It is an "all gravity" installation, saving costly machinery. Columbian engineers planned the layout and Columbian furnished the tanks and supplied the contractor to work with the owners, Simonds-Shields-Thies Grain Co., of Kansas City.

Burlington's management also knew that in choosing Columbian Bolted Steel Tanks they would get an elevator soundly engineered, flexible, fire-safe and vermin-proof—a structure impervious to wind and weather. When needed, added matching capacity will be easy.



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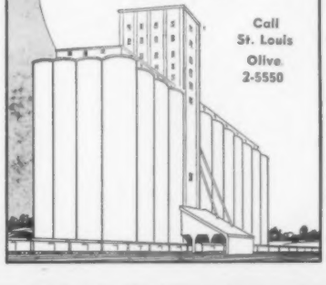

cles, (5) resorption of fetuses, (6) poor udder development, (7) decreased milk flow and (8) weak pigs with incoordinated action.

Manganese requirement ranges from 20 to 40 parts per million (9 to 18 mg./lb.) in the total ration. The average natural swine diet contains about 20 p.p.m.

Iron will be deficient for the suckling pig in dry lot. Adding extra iron to the sows' ration will not prevent this iron deficiency from developing. Prevent iron deficiency by either putting a shovel-full of clean sod in the pen or painting the sow's udder daily with a solution of ferrous sulfate (1 lb. per gallon of water). Either of these methods should be used from birth until the pigs are placed on pasture or until they are eating 0.25 lb. of a good creep ration daily.

Copper is required only in trace amounts, and either of the methods used to supply iron will also supply sufficient copper.

Cobalt function and requirement for swine has not been established. In the absence of adequate vitamin B_{12}, several experiments have indicated a stimulation in growth rate and more efficient gains for hogs in dry lot when 0.15% cobalt chloride was added to practical rations. However, it is doubtful whether cobalt supplementation is necessary if the diet is fortified with vitamin B_{12}.

Iodine is a trace element which is required in small amounts for the proper growth and reproduction in swine. Iodine deficiency in natural feeds is geographical due to iodine deficiency soils. Great Lakes Region, Pacific Northwest and other areas isolated from the sea spray of the coast are usually low in iodine. Quantitative minimum iodine requirements are not known, but feeding stabilized iodized salt containing .007 to 0.15% iodine will prevent any occurrence of iodine deficiency.

Zinc requirement of swine has not been established, but in (Zn) relation to curing swine parakeratosis on high-

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Repeated trials at the USDA Beltsville, Md., experimental farm, show that chicks fed rations containing 4% hydrolyzed poultry feathers make extra fast gains—**about 8% more** than chicks fed the same ration, but without hydrolyzed poultry feathers.

At least 15 different minerals exist in the ash of hydrolyzed poultry feathers. The most plentiful is silicon, with iron, calcium and aluminum following in that order. Traces of copper, cobalt, lead, tin, manganese, vanadium, zinc, molybdenum, potassium and arsenic are also present.

At Beltsville the conclusion is tentatively reached that the mysterious growth factors lie not in any one of the minerals contained but **in the particular combination hydrolyzed poultry feathers afford.**

HYDROLYZED POULTRY FEATHERS produce extra profits for feed mixers (they're less costly than other protein supplements) and provide EXTRA GROWTH FACTORS for the grower.

Hydrolyzed Poultry Feathers are produced under license from B-M-K- Corporation to meet this AFCO definition: "Hydrolyzed Poultry Feathers is the product resulting from the treatment under pressure of clean, undecomposed feathers from slaughtered poultry, free of additives, and/or accelerators. Not less than 70% of its crude protein content shall consist of digestible protein."

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- **IDEAL BY-PRODUCTS • Division of Wilson & Toomer Co., Jacksonville, Fla.**
- **J. D. JEWELL, INC. • Gainesville, Ga.**
- **MARDEL BY-PRODUCT CORP. • Salisbury, Md.**
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- **POULTRY BY-PRODUCTS CO. • Canton, Ga.**
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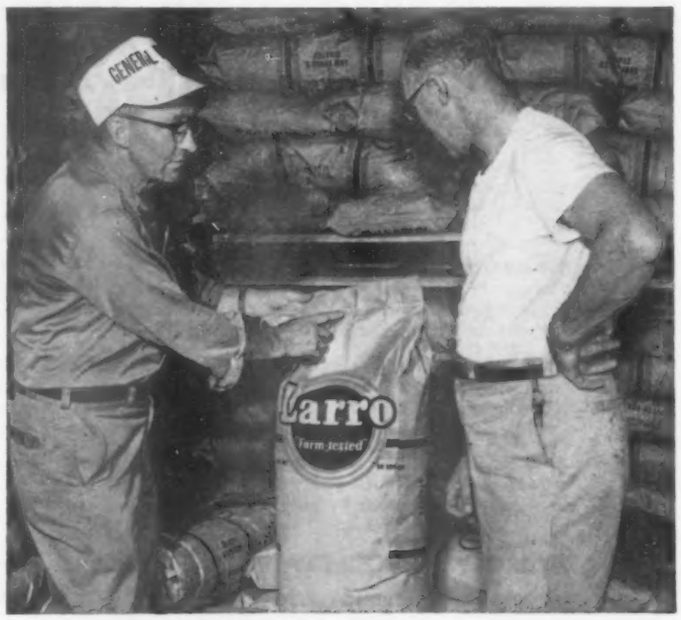
calcium (1.0%) diets is of practical interest.

Parakeratosis is a disease of young swine characterized by anorexia, retarded growth, severe dermatitis (mangy look) and diarrhea. Usually this disease results from feeding excessive amounts of calcium (1.0%) and low zinc (less than 30 p.p.m.). It can be prevented or cured by feeding required amounts of calcium (0.5 to 0.65%) and/or 50 to 100 p.p.m. of zinc. Even though this nutritional disease can be alleviated by these methods, unpublished research (Purdue, 1956) has indicated that other biological factors besides calcium and zinc have an influence on either producing, preventing or curing swine parakeratosis.

Sulfur has never been proven to be an essential element for swine in its (S) elemental or inorganic form. The sulfur requirements are furnished by the sulfur containing amino acids, methionine and cystine.

AMINO ACIDS: No class of nutrients is more important and critical in swine rations than proteins or their components — amino acids. Swine are monogastric animals and are not capable of synthesizing all of the amino acids required for growth. A series of experiments at Cornell and Purdue have shown that pigs require 10 essential amino acids in their daily diet; namely arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophane and valine. A deficiency of any one or more of these indispensable amino acids will result in poor growth, depressed appetite and inefficient utilization of feed.

Since corn furnishes 50% or more of the protein fed to swine, the basic problem is to furnish supplementary sources of protein that will compensate for the amino acid and total protein deficiencies of corn. Fundamentally the protein requirements of swine are dependent on feeding the proper amounts and balance of essential amino acids. Recent reduction in the total protein requirements of swine has put more stress on the protein supplement to be of higher quality from the standpoint of essential amino acids as well as other nutritional factors. Successful protein supplementation of corn and other grains is dependent on supplying all of the essential amino acids in each feed. Hogs cannot eat an excess of amino acids today in order to supply the needs of tomorrow. Simultaneous feeding of all the essential amino acids is necessary for most efficient and complete utilization. Amino acids are not stored or car-



General Mills uses feed bags sewn with "Super Cordura" rayon for greater strength... lower cost

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What's more, General Mills prefers "Super Cordura" for its bag-closing operations, too. The Du Pont yarn is treated with a special lubricant finish to insure good sewability. The extra strength of "Super Cordura" reduces breaks during sewing . . . lets one size yarn replace several conventional sizes, lowering thread inventory.

Consider the advantages of bags sewn with Du Pont "Super Cordura" the next time you place an order for multi-wall . . . and use "Super Cordura" in closing your own filled bags.

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ried over to meet the body requirements for the next day. The prayer of the pig should be "give me this day my daily needs of essential amino acids."

In order to fully explain the relation of amino acids to swine nutrition, it is necessary to discuss three phases of this subject: (1) Essential amino acids required and some of their effects on pigs, (2) the relation of amino acid and protein requirements and (3) amino acid deficiencies in natural feedstuffs.

Essential Amino Acids: The levels of amino acids required to meet the needs for growing swine are presented in Table 1. Quantitative requirements for the weanling pig have been determined for all the essential amino acids excepting arginine, histidine and leucine. It will not be necessary to discuss each essential amino acid, but in some cases special comment is needed to clarify the requirement and a few samples of the effects of a deficiency will be given.

Arginine can be synthesized by the pig at a rate sufficient to permit 60% of normal growth, but the pig requires a dietary source of arginine for maximum growth (Mertz et al., 1952). Weanling pigs fed a purified diet containing 0.20% arginine gained 1.21 lb. while those receiving no arginine gained 0.72 lb. (Table 2). In the same experiment, the pigs deprived of **leucine, phenylalanine** and **valine** either lost weight or gained a negligible amount. From these data, it is quite evident that arginine is synthesized by the pig but not at a rapid enough rate to support maximum growth. Tissue analysis experiments (Williams et al., 1954) have indicated that the pig requires 0.91% arginine from some source, but obviously this cannot be taken as a dietary requirement since body synthesis occurs. No minimum levels have been established for arginine requirement, but 1.77% of the protein in the diet is adequate to meet the needs along with the amount synthesized by the pig.

Histidine requirement has not been clearly defined. Brinegar (1952) suggested that the pig requirement for histidine does not exceed 1.9% of the protein in the ration. Limited data from Purdue (unpublished) has indicated that a weanling pig can grow at a normal rate (1.10 to 1.21 lb. daily) on a semi-purified diet containing 0.30% L-histidine which corresponds to 2.3% of the protein. Recently Williams et al. (1954) has estimated by tissue analysis a histidine requirement of 0.34% of the diet. Practical swine rations do not contain excessive levels of histidine (0.34 to 0.46%) but probably enough to meet the daily needs. Corn is relatively low in histidine (0.21%).

Leucine is present in sufficient amounts in corn and various protein supplements to meet the tentative requirements of the weanling pig. Recently Eggert et al. (1955) has shown that the L-leucine requirement of the suckling pig (starting weight 2.5 lb.) is more than 1.00% but does not exceed 1.25% of the diet. This is equivalent to not more than 5.0% of the dietary protein. Weanling pigs will grow at a normal rate if the diet contains 0.8% L-leucine or 6.0% of the dietary protein (Beeson et al., 1953c). Considering the difference in age, these values are in fairly close agreement.

Lysine is one of the amino acids which is most frequently deficient in swine rations. A lysine deficiency is characterized by loss of weight, reduced appetite, poor feed efficiency, rough dry hair coat and a general emaciated condition. Adding 2.0% DL-lysine-HCl to the diet of the deficient pig caused an immediate improvement in growth rate, appetite

(Continued on page 49)

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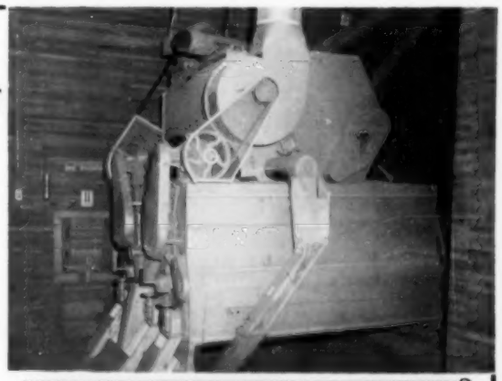

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REPORT TO THE FEED INDUSTRY

"We've produced beef cheaper and faster than ever before..."

Named "outstanding young farmer of the year" by Norwalk, Ohio, Jaycees, James Yingling credits supplements with 'Stilbosol' with "best gains we've ever had."

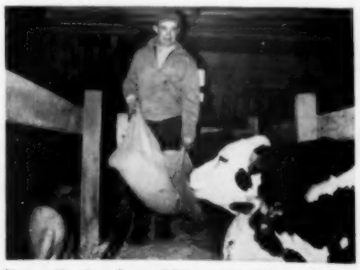
by Eugene S. Hahnel

Because he bought all the feed, James Yingling was able to keep extremely accurate records on 21 head of western, grade Angus steers. His drylot ration consisted of ground corn and cob, mixed hay (alfalfa-timothy-clover), and a supplement with 'Stilbosol.' His steers averaged 2.5 pounds gain a day, at a cost of only 13.4¢ per pound of gain . . . over a feeding period of 210 days.

Yingling was pleased with the job 'Stilbosol'-fortified supplements did for him. "We've had the best gains on 'Stilbosol' that we've ever had," he reports. "We've kept accurate records this year and produced beef cheaper and faster than ever before. We're glad this new development is available to cattle feeders."

"Our feed dealer . . . knows what he's doing" — James went out of his way to comment on the help he got from the feed industry. "Our feed dealer is always anxious to help us. He knows what he's doing, knows our problems, and is always ready to help. Any time we have a problem he can't solve, he gets in touch with the feed manufacturer's representative and we get immediate service. In our opinion the feed manufacturers are doing a good job of bringing 'Stilbosol' to the feeder. We think it's wonderful."

Yingling (left) and Clint Missler, feeding advisor (right), work closely together to make the fastest, most economical gains with Yingling's cattle. Clint first convinced James he would profit by feeding supplements with 'Stilbosol.'



Young Yingling farms 158 acres in Huron County, Ohio. He usually plans to feed three groups of 20 head a year. Ten brood sows following his cattle are doing fine. The story of this young farmer will be read by cattle feeders throughout the country in Lilly ads in 15 farm magazines.

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• 1876 - Eightieth Anniversary - 1956 •

ELI LILLY AND COMPANY, AGRICULTURAL PRODUCTS DIVISION, INDIANAPOLIS 6, INDIANA

"Hens lay more eggs, l

Some of the results of many trials at experiment stations and poultry farms

1 AUREOMYCIN increases egg production 6.5% in high producing layers

In a trial at *Texas A & M College* 200 White Leghorn hens were divided into two groups of 100 hens each. After a one-month adjustment period, production averaged 70% in both groups. The experiment was then started with one group receiving AUREOMYCIN at a level of 5 grams per ton of feed, the other at a level of 50 grams of AUREOMYCIN chlortetracycline per ton of feed. Over the next ten-month period, the group of hens receiving the higher level of AUREOMYCIN showed an average increase in egg production of 6.5% over that of the group receiving the lower level of AUREOMYCIN. Each dollar spent for AUREOMYCIN produced 53 extra eggs.

2 AUREOMYCIN brings hens out of laying slump, increases egg production 29%—hatchability 26%

In a trial in *Texas*, 6,000 New Hampshire pullets were divided into 4 pens of 1,500 birds each. Pullets reached 50% production at six months of age and continued at this rate for 3 months when the rate of production fell off sharply to 37%. AUREOMYCIN at the level of 200 grams per ton of feed was added to the ration in 2 pens for a period of 16 days. These two pens made a rapid recovery showing 29% increase in egg production over the 2 pens not receiving AUREOMYCIN during this 16-day period. This test also showed a 26% increase in hatchability from the feeding of AUREOMYCIN.

3 AUREOMYCIN increases early egg production, maintains late production at a higher level

In a 12-month trial in *Utah*, 600 White Leghorn hens were placed on a feed containing 100 grams of AUREOMYCIN chlortetracycline per ton with another 600 White Leghorn hens receiving no AUREOMYCIN supplementation used as controls. During the trial, extremely cold weather stressed the birds on several occasions. The hens receiving AUREOMYCIN showed an increased *early* egg production and maintained *late* production at a higher level than the hens receiving no AUREOMYCIN. Over a one-year production period, the controls averaged 54.4% production and those receiving AUREOMYCIN averaged 60.2% production. The 600 hens receiving AUREOMYCIN—at an approximate extra feed cost of $276—produced 1476 *more dozens* of eggs. With eggs selling at 35¢ per dozen, that means 517 more dollars, or an extra return over the cost of AUREOMYCIN of $241.

4 AUREOMYCIN increases egg production 18%, cuts feed costs 4½¢ per dozen eggs

In a 196-day trial in *Alabama*, one group of 837 New Hampshire breeding hens received no AUREOMYCIN in their feed. Another group of 525 hens received AUREOMYCIN at the level of 50 grams per ton of feed. The group of hens receiving AUREOMYCIN showed an increase of 18% in egg production over the controls, averaging 14 more eggs per hen for the 196-day period. Hens fed AUREOMYCIN required 1.3 pounds *less* feed to produce a dozen eggs. With feed costs at $80 per ton, this means a saving of 4½¢ per dozen eggs. Eggs from the group fed AUREOMYCIN averaged 5% more in weight.

5 AUREOMYCIN increases egg production 16.3% in the presence of CRD

In another trial in *Georgia*, 2,916 New Hampshire breeding hens showing clinical symptoms of chronic respiratory disease were divided into two groups. One group of higher-producing hens continued on the regular ration without AUREOMYCIN supplementation. The other group of lower-producing hens received AUREOMYCIN at the level of 100 grams per ton of feed. The group fed AUREOMYCIN started to improve immediately and, over the next 45 days, jumped from a per cent egg production 7.4 *below* that of the controls to a per cent egg production 8.9 *above* the controls—an improvement in per cent egg production of 16.3.

6 AUREOMYCIN increases egg production 18% in hot weather —produces 47 more eggs per 100 pounds of feed

In a 100-day trial at *Arizona College*, in temperatures up to 103 degrees the addition of AUREOMYCIN at a level of 50 grams per ton of feed to the ration of White Leghorns *increased egg production 18%* . . . and produced 47 more eggs per 100 pounds of feed. In another hot weather test of 112 days at Arizona, hens laying at the rate of only 27.7% but showing no symptoms of disease were placed on a ration containing 50 grams of AUREOMYCIN chlortetracycline per ton. This increased egg production 47%—produced 74 more eggs per 100 pounds of feed.

7 AUREOMYCIN increases egg production 39% in winter months in low producing hens

In a trial at *Iowa State College*, approximately 120 New Hampshire pullets were divided into 12 groups. These birds were fed, during a four-month period, a ration without AUREOMYCIN supplementation. During this period, the decline in egg production was unusually rapid. When AUREOMYCIN was added at a level of 100 grams per ton of feed to the rations of the 8 lowest-producing groups, egg production improved immediately. During the 60-day period following the incorporation of AUREOMYCIN in the feed, these 8 groups showed an average increase in egg production of 39%.

8 AUREOMYCIN maintains high egg production over a longer period, produces 13,000 more chicks per 1,000 hens

In a trial in *Georgia*, one group of 630 New Hampshire breeding hens was placed on feed containing AUREOMYCIN at the level of 100 grams per ton. Another group of 630 hens received no antibiotic supplementation. As growing pullets, both of these groups of birds had suffered from CRD. The level of 100 grams of AUREOMYCIN chlortetracycline led to an *increased early egg production* and was responsible for maintaining *late production at a higher level*. Over a 11-month period, the group of hens receiving AUREOMYCIN showed a *10% improvement in egg production over the controls*. Results also showed a 5.4% increase in hatchability of the eggs from hens fed AUREOMYCIN, resulting in 13,048 more chicks per 1,000 hens.

longer, on less feed"

...that's your profit sales message when your layer and breeder feeds contain the **right** amount of the **right** antibiotic: Aureomycin

Many feed manufacturers *have been using* this sales message successfully for many months... and bringing EXTRA RETURNS to farm flock owners and to producers of market and hatching eggs.

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1. More eggs over a longer period
2. More *early* and *late season* eggs
3. More eggs per 100 lbs. of feed
4. More eggs in presence of disease
5. More eggs in times of stress
6. More chicks from increased hatchability

Each and every one of these advantages has been proved in the Experiment Station and poultry farm trials described on the opposite page. These trials are a few of the many that have been made with AUREOMYCIN in layer and breeder feeds.

A special leaflet on AUREOMYCIN for layers is now available for use by feed manufacturers. Write for free supply. American Cyanamid Company, Animal Feed Dept., 30 Rockefeller Plaza, New York 20, New York.

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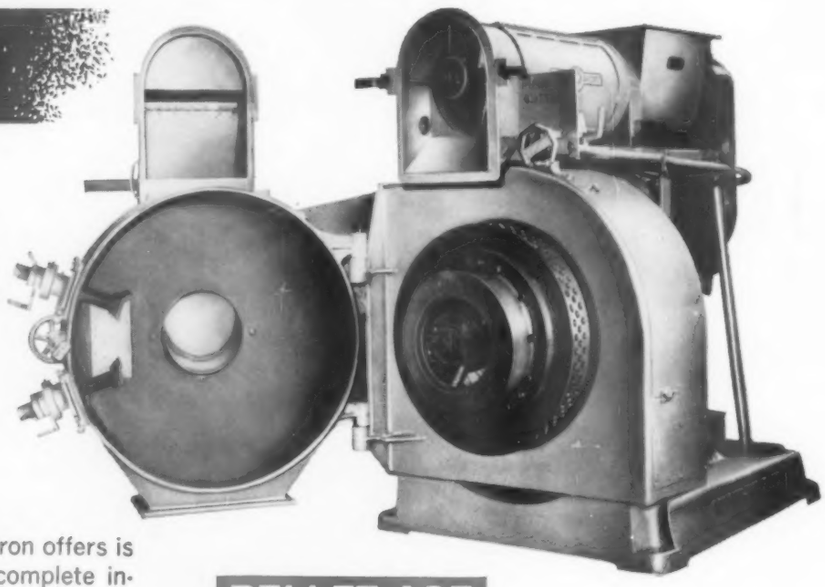

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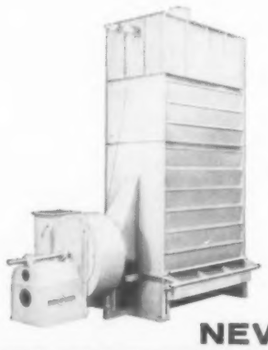

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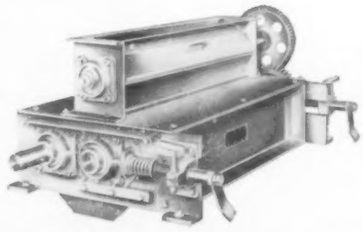

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FE/432

Table 1—Essential Amino Acid Requirements of Swine

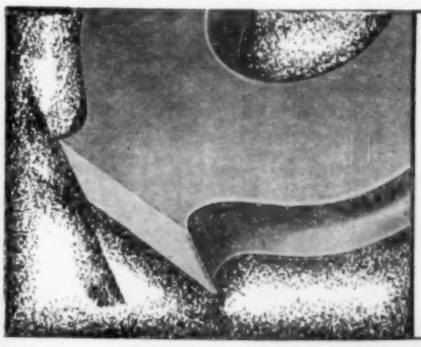
Amino acid	Amino acid requirements: Protein level fed, %	% of total ration	% of protein in ration	Calculated amino acid requirements for total ration 18% protein level†	Reference
L-Arginine*	11.3	0.20	1.77	.32	Mertz et al (1952)
L-Histidine*	13.2	0.40	3.03	.54	Beeson et al (1953c)
L-Isoleucine	22.0	0.70	3.18	.57	Brinegar et al (1950b)
L-Leucine*	13.2	0.80	6.06	1.09	Beeson et al (1953c)
L-Lysine	23.8	1.00	4.20	.76	Shelton et al (1951b)‡
DL-Methionine†	21.0	0.60	2.86	.51	Shelton et al (1951a)‡
DL-Phenylalanine	13.0	0.46	3.54	.64	Beeson et al (1953b)
L-Threonine	13.2	0.40	3.03	.54	Beeson et al (1953c)‡
DL-Tryptophane	24.5	0.20	0.82	.15	Shelton et al (1951c)
L-Valine	12.8	0.40	3.12	.56	Jackson et al (1953)

*This level is adequate but minimum requirement has not been established.
†Cystine can replace one half (0.3%) of the methionine requirement.
‡Similar but slightly higher requirements have been presented on lysine (5.5% protein) by Brinegar et al (1950a) and for methionine (3.2% protein) by Curtin et al (1952b). Baby pig requirement for threonine is 3.6% protein (Sewell et al, 1953).
§This is assuming that the amino acid requirement is directly proportional to the protein level fed (Brinegar et al, 1950a).

and thriftiness. This is typical of the dramatic and immediate response to amino acid supplementation. There is no lag. Pigs react to the absence of an essential amino acid very rapidly. Of course borderline deficiencies will not give as acute results. Quantitative studies by Brinegar et al. (1950a) have shown that the lysine requirement of the weanling pig is 1.2% of the ration or 5.5% of the protein. Research at Purdue (Shelton et al., 1951b) indicated that lysine was required at a lower level—4.2% of the protein. Practical studies on supplementation of natural feeds agree more closely with the lower figure; therefore, the lower level is used in Table 1. **Lysine is likely to be deficient in practical swine rations and should be carefully checked.**

Methionine and **Cystine** studies with pigs (Shelton et al., 1951a; Curtin et al., 1952c) have definitely shown that approximately one half of the methionine requirement can be met by cystine. This is an important relationship because usually natural feedstuffs provide only a minimum amount of methionine and the remainder of the requirement must come from cystine. Curtin et al. (1952c) reported the methionine plus cystine requirement for the weanling pig is approximately 0.7% of the ration containing 22% protein. This corresponds to 3.2% of the protein and 1.7% can be replaced with cystine. Earlier work (Shelton et al., 1951a) has indicated that on a ration containing 21.0% protein plus adequate cystine (0.3% or more), the methionine requirement is 0.3% of the diet. Since natural protein supplements contain both methionine and cystine, the combined values should be used in calculations and the amount that cystine can contribute should be limited to 50% of the methionine requirement.

Phenylalanine has been set at 0.46% of the diet (13% protein) or 3.54% of the protein (Beeson et al., 1953b). The sparing action of tyrosine on the phenylalanine requirement for the pig has not been completely determined. However, in this experiment (Beeson et al., 1953b), approximately 30% of the phenylalanine requirement was met by tyrosine. Since tyrosine can replace part of the phenylalanine required by the rat (Womack and Rose, 1934), it was assumed that it likely has an analagous function with the pig. There is no evidence that phenylalanine deficiency ever occurs in practical swine rations,



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especially since tyrosine can partially meet the needs for phenylalanine.

Tryptophan was the first amino acid to be identified as essential for the pig (Beeson et al., 1949). Although the amount required in the diet (0.15 to 0.20%) is rather low, many practical swine rations are either deficient or are on the borderline of being adequate. Qualitative studies on tryptophan have shown rather clearly the gross effects of feeding pigs on diets low in tryptophan, even in the presence of all the other nutrients needed by the pig. This condition of a rough hair coat, dry skin, depraved appetite (chewing board fence), loss in weight and lowered feed intake is typical of amino acid deficiency disease. Adding tryptophan to the diet of the pig either the 14th or 21st day of the experiment caused an immediate response and recovery. Emphasis should be placed on the fact that an acute deficiency of any one of the **"10 essential amino acids" for the pig has the same effect as a lack of total protein.**

Relation of Amino Acid Balance to Protein Requirement: Levels of crude protein recommended to meet the requirements of swine are based essentially on supplying adequate amounts and balance of the 10 essential amino acids. Protein supplements are by nature borderline in one or more essential amino acid(s); therefore, in order to compensate for the "weakest link in the amino acid chain," excessive amounts of total protein are fed. This point is best illustrated by research that has been conducted by supplementing diets with pure amino acids.

In classification of the amino acids for pigs (Mertz et al., 1952), it was shown that if the 10 indispensable amino acids were fed at the proper balance and level, a weanling pig (30 lb.) could grow normally on 7.4% protein from amino acids and 3.9% protein equivalent from diammonium citrate (11.3% total crude protein). Pigs on this diet gained 1.12 to 1.29 lb. daily which is even above the average for pigs of that weight and age on practical rations. Rations of this type are far from practical, but it indicates that the high level of protein required in pig feeding is due to the poor quality of protein balance of amino acids. Although these experiments were conducted with pure synthetic diets, other research has shown that the same principles apply to balancing corn with amino acids.

Subsequent research (Beeson et al., 1953c; Jackson et al., 1953) has indicated that weanling pigs will grow at a normal rate (1 lb. daily) on a diet containing 13.2% crude protein furnished by corn, amino acids and diammonium citrate. Apparently weanling pigs have a low protein requirement (11.3 to 13.0%) when the essential amino acids are fed in the right amounts and in the proper balances. These data also reveal that the pig can synthesize dispensable amino

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acids from non-protein nitrogen compounds such as diammonium citrate. However, using nonprotein nitrogen to supplement a diet limited by essential amino acids will not stimulate growth. The low protein values mentioned (11.3 and 13.0%) certainly do not represent the protein requirements of pigs fed practical swine rations but only serve to illustrate the potential possibilities of reducing the protein requirements by amino acid supplementation.

Using natural feedstuffs, it usually requires 18% crude protein in the diet to meet the daily needs for weanling (25 to 30 lb.) pigs. Thus, higher levels of protein are required with a combination of grain and protein supplement in order to furnish adequate amounts of certain limiting amino acids. In most swine rations, the borderline or limiting amino acids are **tryptophan, lysine** and occasionally **methionine.**

Recently the committee of the National Research Council on swine nutrition (Beeson et al., 1953a) made the following recommendations on protein requirements for swine:

Protein Requirements in Percentage of Total Ration

Description	Live-weight lb.	Crude protein %
Market stock	25	18
Market stock	50	16
Market stock	100	14
Market stock	150	13
Market stock	200	12
Market stock	250	12
Pregnant female and breeding boars		
Young stock	300	15
Adults	500	14
Lactating females		
Gilts	350	15
Sows	450	14

Although lower requirements for protein have been suggested by several workers, these values represent the protein required by swine under usual feeding conditions.

Amino Acid Deficiencies in Natural Feedstuffs: When one protein supplement is combined with corn at 18% protein level, the amino acids which are deficient or on the borderline (?) of being deficient are as follows:

Combination	Limiting Amino acid
Corn + cottonseed meal	Lysine
Corn + fish meal	Tryptophan (?)
Corn + linseed meal	Lysine
Corn + meat and bone scraps	Tryptophan and histidine (?)
Corn + soybean meal	Methionine
Corn + tankage	Tryptophan and methionine (?)

Question marks have been placed by those amino acids which have not been proven to be deficient by actual feeding experiments or, in some cases, there is disagreement. Sufficient evidence is available to state rather definitely that corn rations balanced with either cottonseed meal or linseed meal lack adequate lysine. Tryptophan becomes the limiting amino acid when fishmeal, meat and bone scraps, and tankage are used as the sole source of protein wth corn. Soybean meal is commonly accepted as being deficient in methionine. Even though corn-tankage diets indicate a borderline deficiency in methionine, Purdue studies have shown no improvement either in growth rate or feed efficiency by adding 0.2% DL-methionine to a corn-tankage ration for swine. Calculated values indicate that histidine is low in corn and meat and bone scrap rations; but since the minimum histidine requirement has not been established, further research needs to be conducted before the final answer is known. The results of adding amino acids to meat by-product rations are given in Table 2.

Table 2—Pig Response to Amino Acid Supplementation of Corn-Tankage and Corn-Meat Scrap Rations* (14.5% Crude Protein)

Ration	Daily gain	Feed/lb. gain
Tankage	1.39	3.19
Tankage + 0.6% DL-lysine	1.35	3.17
Tankage + 0.2% DL-methionine	1.27	3.22
Tankage + 0.1% DL-tryptophan	1.54	3.11
Tankage + 3 amino acids	1.51	3.21
Meat and bone scraps	1.13	3.45
Meat and bone scraps + 3 amino acids	1.50	3.00

*Weanling pigs fed from 30 to 125 lb. in weight. (Henson, J. N., and Beeson, W. M., Purdue, 1955.)

Summary

The results to date on the amino acid requirements of swine permit the following statements:

1. Pigs require 10 "essential" amino acids; namely arginine, histidine, iso-

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leucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine in their diet for maximum growth and development.

2. If the essential amino acids are fed in the proper amounts and balance, the remainder of the protein requirements can be supplied by nonessential amino acids or nonprotein nitrogen.

3. Essential amino acids must be fed simultaneously for optimum conversion and use in the body.

4. Crude protein levels necessary to meet the requirements of swine are based essentially on the ability of a protein supplement to supply adequate amounts of the 10 essential amino acids to balance the diet.

5. The most critical limiting amino acids in swine feeds in order of possible deficiency are (1) tryptophan, (2) lysine and (3) methionine.

6. There is a real possibility of improving swine diets and lowering the protein requirements by supplementing the ration with pure amino acids when they are manufactured in large enough quantities to be economical. Eventually swine diets will be compounded on an amino acid basis rather than crude protein.

7. Amino acid requirements as percentage of the diet are very closely related to the energy or caloric value of the diet as well as the crude protein level.

v v

REFERENCES CITED

Beeson, W. M., Mertz, E. T., and Shelton, D. C., 1949—Effect of Tryptophan Deficiency on the Pig; Journal of Animal Science, 8: 532.

Beeson, W. M., Crampton, E. W., Cunha, T. J., Ellis, N. R., and Luecke, R. W., 1953a—Nutrient Requirements for Swine II. No. 295; National Research Council, 2101 Constitution Ave. N.W., Washington, D.C.

Beeson, W. M., Mertz, E. T., and Henson, J. N., 1953b—Amino Acid Requirements of Swine — Phenylalanine; Journal of Animal Science, 12:906.

Beeson, W. M., Jackson, H. D., and Mertz, E. T., 1953c—Quantitative Threonine Requirement of the Weanling Pig; Journal of Animal Science, 12:870.

Brinegar, M. J., Williams, H. H., Ferris, Fent H., Loosli, J. K., and Maynard, L. A., 1950a — The Lysine Requirement for the Growth of Swine; Jour. Nutr., 42:129.

Brinegar, M. J., Loosli, J. K., Maynard, L. A., and Williams, H. H., 1950b—The Isoleucine Requirement for the Growth of Swine; Jour. Nutr., 42:619.

Brinegar, M. J., 1952—Protein for Swine in Terms of Amino Acid Needs; Feed Age, 2:20.

Curtin, L. V., Abraham, J., Williams, H. H., Loosli, J. K., and Maynard, L. A., 1952a—Estimation of Amino Acid Requirements of Swine from Tissue Analyses; Fed. Proc., 11:439.

Curtin, L. V., Loosli, J. K., Willman, J. P., and Williams, H. H., 1952b—Methionine as a Supplement to Soybean Oil Meal for Weanling Pig; Journal of Animal Science, 11:459.

Curtin, L. V., Loosli, J. K., Abraham, Jean, Williams, H. H., and Maynard, L. A., 1952c—The Methionine Requirement for the Growth of Swine; Jour. Nutr., 48:499.

Eggert, R. G., Williams, H. H., Sheffy, B. E., Sprague, E. G., Loosli, J. K., and Maynard, L. A., 1955 — The Quantitative Leucine Requirement of the Suckling Pig; Jour. Nutr., 53:177.

Jackson, H. D., Mertz, E. T., and Beeson, W. M., 1953—Quantitative Valine Requirement of the Weanling Pig; Jour. Nutr., 51:109.

Mertz, E. T., Beeson, W. M., and Jackson, H. D., 1952 — Classification of Essential Amino Acids for the Weanling Pig; Arch. Biochem. Biophy., 38:121.

Sewell, R. F., Loosli, J. K., Maynard, L. A., Williams Harold H., and Sheffy, Ben E., 1953—The Quantitative Threonine Requirement of the Suckling Pig; Jour. Nutr., 49:435.

Shelton, D. C., Beeson, W. M., and Mertz, E. T., 1951c—Quantitative DL-Tryptophan Cystine on the Growth of Weanling Pigs; Journal of Animal Science, 10:57.

Shelton, D. C., Beeson, W. M., and Mertz, E. T., 1951b — Quantitative L-Lysine Requirement of the Weanling Pig; Arch. Biochem. 30:1.

Shelton, D. C., Beeson, W. M., and Mertz, E. T., 1951a—The Effect of Methionine and Requirement of the Weanling Pig; Journal of Animal Science, 10:73.

Williams, Harold H., Curtin, Leo V., Abraham, Jean, Loosli, J. K., and Maynard, L. A., 1954—Estimation of Growth Requirements for Amino Acids by Assay of the Carcass; J. Biol. Chem., 208-277.

Womack, M., and Rose, W. C., 1934—Feeding Experiments With Mixtures of Highly Purified Amino Acids. VI. The Relation of Phenylalanine and Tyrosine to Growth; Jour. Biol. Chem., 107:415.

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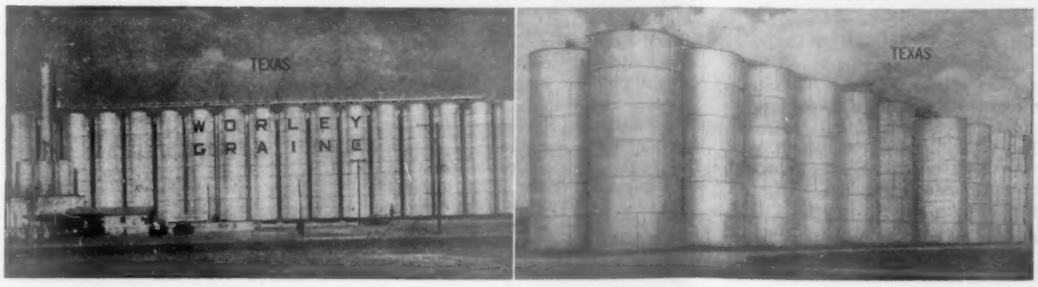

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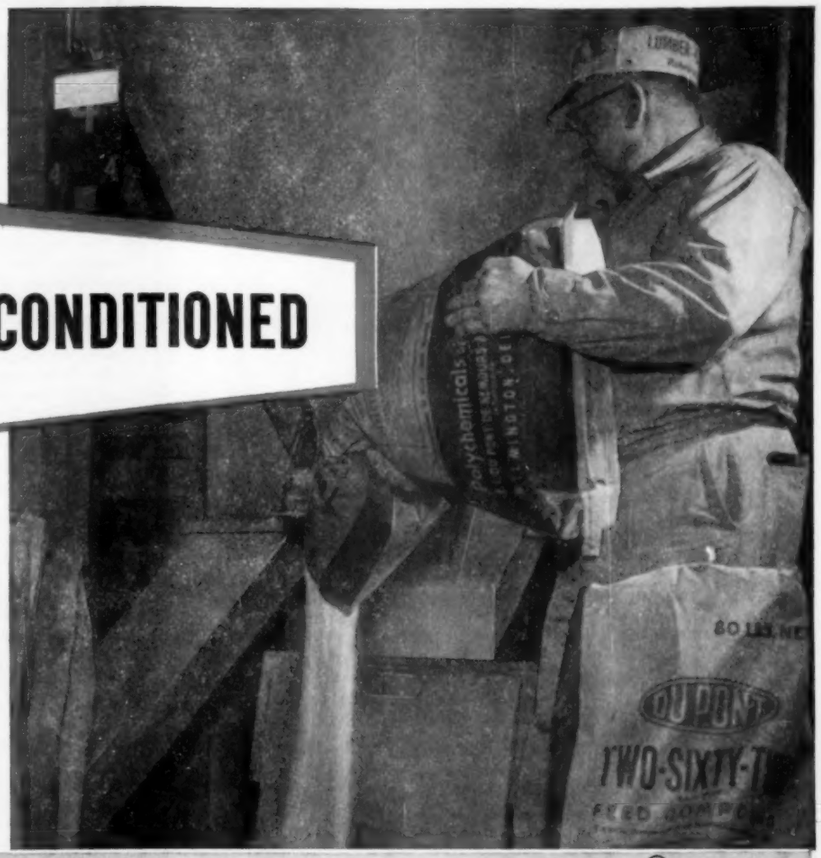

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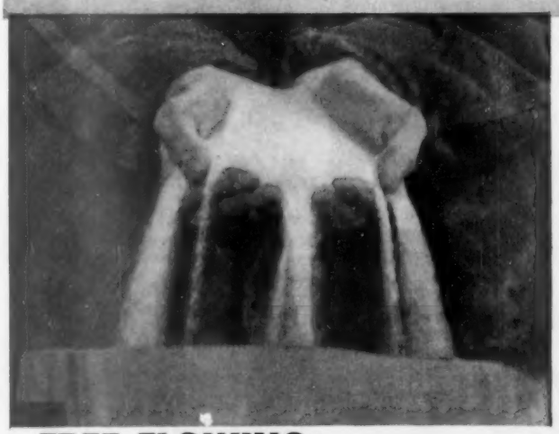

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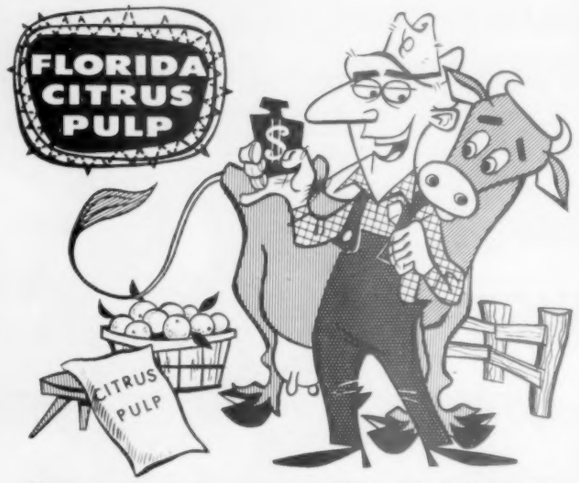

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Money is concentrated right in the strong sales appeal of Florida Citrus Pulp. This popular cattle feed piled up an impressive sales volume of nearly 300,000 tons last year alone. You stand to benefit regularly from the consistent advertising program we maintain in leading farm publications. These ads are designed to pull inquiries which will be passed along to you. You can add this proven product to your line with complete confidence that those profitable consumer dollars will soon "concentrate" in your pocket. Write, right now, for information on a dealership of your own.

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Fortify your feeds with

DIAMOND V BRAND **LIVE YEAST CULTURE**

(Especially Prepared for Dry Mix Feeding)

Supplies: Vitamin B_{12} activity, live yeast digestive enzymes, B complex vitamins, **plus** other potent unidentified factors. Improves appetite, digestion (including rumen aid), health, growth, production. Increases feed utilization — lowers feed cost.

Live yeast values improve feeding results in recent State conducted tests.

New Yeast Folder Available

write . . . DIAMOND V MILLS, INC. • CEDAR RAPIDS, IOWA

VE Quarantine on 2 N.J. Hog Farms Imposed by USDA

WASHINGTON — A federal quarantine has been placed on two hog farms at Secaucus, N.J., to prevent interstate spread of vesicular exanthema (VE), U.S. Department of Agriculture officials announce.

This serious virus disease of swine was diagnosed in the Secaucus herds in November and a state quarantine of the premises was imposed. Regulatory officials are now working with owners of the swine in efforts to reach agreement on disposal of the 8,000-9,000 animals affected.

A previous VE outbreak, involving some 1,300 hogs, was diagnosed in another herd at Secaucus last August. Prompt slaughter of all infected and exposed animals and a thorough cleanup and disinfection of the premises eliminated the outbreak, which was the first new appearance of VE in the U.S. since November, 1955.

The disease reached epidemic proportions in the U.S. during 1952 and 1953, when 42 states reported that they had infected swine. Aggressive control and eradication measures succeeded in sharply reducing the incidence of VE.

Cotton Group Builds Alabama Broiler Plant

BOAZ, ALA.—A 32,000-sq.-ft. poultry dressing plant is being constructed by the Cotton Producers Association at Boaz, Ala. The plant will serve poultry growers in the Sand Mountain and north Alabama area. With a capacity potential of 200,000 broilers per week, it will be the third Gold Kist poultry plant. Others are located at Canton and Holly Springs, Ga.

A continuous offal and feather removal system will facilitate cleanliness at all times. Water will remove the offal and feathers to a specially designed room where they will be separated from the water and loaded on trucks for transportation to Cotton Producers Association's rendering plant at Canton, Ga. There they will be processed and sold as feather tankage and poultry by-product meal.

The Cotton Producers Assn., a regional marketing and purchasing cooperative, serves Georgia, Florida, Alabama and Tennessee. It manufactures and purchases feeds, seeds, fertilizer, insecticides and miscellaneous farm supplies for its members, and serves as a marketing agency for members' pecans, cotton, grains, peanuts and poultry. In addition, the association markets cotton and pecans for members in other states.

HEADS RIVER CLUB

KANSAS CITY—Oscar M. Straube, president of Pay Way Feed Mills, Inc., Kansas City, and board chairman of the American Feed Manufacturers Assn., has been elected president of the River Club here. Mr. Straube, an early member of the club, has served as a director.

DIGESTIBLE!

THAT'S ONE OF THE BIG DIFFERENCES IN OYSTER SHELLS

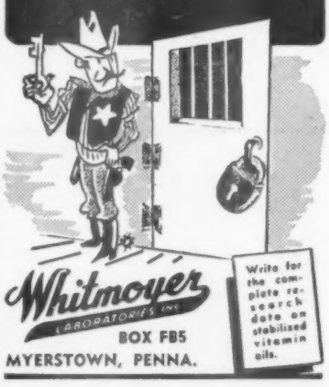
TESTS show that pure, soft EGGSHELL BRAND Oyster Shells turn into egg shells in as little as 6 hours after consumption. Substitutes just aren't as palatable. Insist on the shells softened by centuries of aging at the bottom of Mobile Bay—EGGSHELL BRAND Oyster Shells.

EGGSHELL BRAND

A PRODUCT OF OYSTER SHELL CORPORATION

BALTIMORE MARYLAND

VITAMINS ARE REALLY LOCKED IN STABILIZED VITAMIN OILS



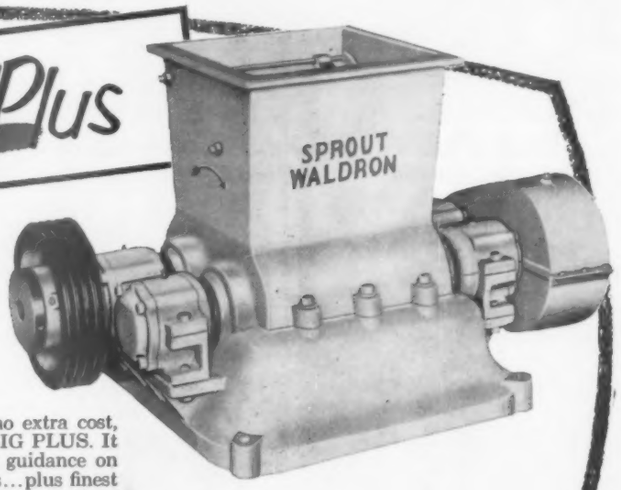
Write for the complete research data on stabilized vitamin oils.

Whitmoyer LABORATORIES INC.

BOX FB5

MYERSTOWN, PENNA.

SPROUT-WALDRON **CRUSHERS** with the Big Plus



Built for years of rugged duty

Whatever your problem in coarse size reduction, there's a Sprout-Waldron Crusher to provide the *one best* answer. You have the widest possible selection of all types and sizes at Sprout-Waldron . . . all designed for top efficiency and economy.

Much of your pre-crushing and controlled feeding of materials can be best handled by a Sprout-Waldron Crusher-Feeder. For crushing corn cobs or reducing pressed cake in huge volumes, large sawtooth crushers are available.

With every machine, at no extra cost, you get Sprout-Waldron's BIG PLUS. It provides expert engineering guidance on installation and applications...plus finest workmanship and service...plus 100% reliability. Write for full details now.

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SW

FE/475

Hubbard Appoints Four To Sales Territories

E. C. Martin — George Ord

Allerd Anthrop — R. Berryman

MARION, IND.—Four new territory representatives have been added to the Hubbard Milling Company staff at Marion, Ind., according to Ogden Confer, vice president and manager of the feed division. They are George Ord, Wauseon, Ohio, Russell Berryman and Allerd Anthrop, both living at Kokomo, Ind., and Ernest C. Martin, Wayland, Mich.

Mr. Ord returns to the Hubbard sales staff after a year's absence doing sales and service work with turkey growers for Wyse Brothers, Archbold, Ohio. Previously he had been with Hubbard for 15 years.

Mr. Martin, who will manage a territory in Michigan, was with General Mills, Inc., for 15 years, and for the past 12 years has been with the Arcady Farms Milling Co.

Mr. Anthrop, who will represent the company in central Indiana, was formerly state sales manager for the Moorman Manufacturing Co., and territory manager for the feed division of Glidden Co. Mr. Berryman has been in feed sales work since 1946 in Indiana and will cover the Kokomo area.

Sheep Feeder Dies

SALT LAKE CITY, UTAH — Charles S. Culp, founder of C. S. Culp & Sons, one of the oldest and largest sheep feeding and buying firms in the U.S., died here at the age of 88.

Mr. Culp conceived the idea of using feed lot operations on sheep in 1895. C. S. Culp & Sons, which annually handles over 1 million sheep, has feeding plants at Lamar and Rocky Ford, Col. Salt Lake City became the firm's headquarters in 1917.

ATTENTION MANUFACTURERS OF DOG and PET FOODS

Increase Your Sales By Using

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High Protein **CHEESE MEAL** Palatable

Guaranteed Minimum Protein 60%

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MAX KATZ BAG CO. — **BAGS** BURLAP, COTTON and PAPER PLAIN or PRINTED Truck Covers, Twines — INDIANAPOLIS, IND.

NEW activated **100%** *Ambrigo* **SUPERTRATE** with **UNIFAC**® UNIdentified FACtors concentrate

lets you pack
MORE GROWTH (FISH FACTOR)
MORE PRODUCTION (FERMENTATION SOLUBLES FACTOR)
MORE REPRODUCTION (GRASS JUICE & WHEY FACTOR)
MORE VITAMINS (UNKNOWN REQUIRED MINERALS FACTOR)
into your formula feeds

it's by *Ambrigo* . . . naturally

The AMBRIGO Company, Inc.
1315 Walnut St., Phila. 7, Pa.

"Yoooooooo—hoooooo, girls! Here's some new Sterling Blusalt"
"When I'm elected there'll be STERLING BLUSALT in every barn and pasture!"
SALT WITH TRACE MINERALS
Your livestock can get the daily low-level amounts of phenothiazine needed for worm control . . . and like it!
NEW FLAVOR INGREDIENT MAKES PHENO-FORTIFIED STERLING GREEN'SALT FULLY PALATABLE
Controlling the worms in cattle with new Pheno-Fortified Salt
1.
2.
3.
4.

Now–5 big promotions to help you sell more Sterling Blusalt, more Sterling Green'salt

SALT WITH TRACE MINERALS ADDED

TRACE-MINERAL SALT WITH 10% "PHENO" FOR WORM CONTROL

"Heard the latest, Gertrude? STERLING BLUSALT and STERLING GREEN'SALT are both available right here!"
"HEY! Now you can get new pheno-formed STERLING GREEN'SALT right in this county!"
"Hoooorey! STERLING BLUSALT is here now!"
5.

1. **BLUSALT ADS AIMED AT FARMERS** are part of Sterling's big, new "Fun-on-the Farm" campaign. The "talking" animals in these ads attract the reader's attention and interest—fast. And they give the farmer a good profit story on this effective trace-mineral salt!
2. **BLUSALT POSTERS AND POINT-OF-SALE MATERIAL** in full color also feature the "talking" animals. Together with farm-paper advertising, this makes the strongest promotion ever used for a trace-mineral salt. Check on free Blusalt displays for your store!
3. **GREEN'SALT ADVERTISING TO FARMERS.** Latest ad in this series tells about "Sucarob," the new flavor ingredient that makes Green'salt fully palatable to all livestock. Ad also shows that only improved Green'salt assures continuous low-level worm control!
4. **GREEN'SALT ADS FOR VETERINARIANS**—the men who influence today's farmers. These ads promote low-level feeding of pheno as effective, economical worm control. And they show why this treatment is best accomplished by new pheno-fortified Sterling Green'salt!
5. **ADS YOU CAN USE TO SELL BLUSALT AND GREEN'SALT** are available in mat form—for your insertion in local papers or magazines over your name. Individual Blusalt and Green'salt ads are available, as well as combination ads. Check your Sterling representative.

• IMPORTANT SALES DATA ON BLUSALT, GREEN'SALT

Remind your customers of these facts: Blusalt contains salt plus six essential trace minerals (cobalt, iodine, manganese, iron, copper, zinc) to give protection against trace-mineral deficiencies. Green'salt (salt+10% "pheno"+trace minerals) gives the same protection—*plus* control over internal parasites. Be sure you have adequate stocks of both Sterling Blusalt and Sterling Green'salt on hand . . . *to sell* and *to mix* in your own feeds. For complete feeding and mixing data on these quality salt products, write to International Salt Company, Inc., Scranton 2, Penna.

STERLING BLUSALT · STERLING GREEN'SALT—products of International Salt Company, Inc.

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Processors of DRIED FISH SOLUBLE PRODUCTS
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BEET PULP
AND 44 OTHER FEEDS

Hearings Set on Wheat Standards

WASHINGTON — Informal public hearings to consider proposals to revise the official grain standards of the U.S. for wheat were announced by the U.S. Department of Agriculture recently. Hearings will be held beginning at 10 a.m. at the following places and dates: Jan. 7—Lincoln-Douglas Room, LaSalle Hotel, Chicago; Jan. 9—Georgian Room, Hotel Continental, Kansas City; Jan. 11—Room 100, Minneapolis Grain Exchange, Minneapolis; Jan. 15—Marine Room, Hotel Multnomah, Portland.

The proposed revisions would change certain quality and condition factors in the standards. The more important proposed changes include a reduction in the minimum moisture requirement for tough wheat; a reduction in the limits of foreign material, wheats of other classes, and shrunken and broken kernels; a change in the limits of dark, hard, and vitreous kernels in the subclasses of hard winter wheat and yellow hard winter wheat in the class of hard red winter wheat; and the incorporation of more specific sanitation requirements in the standards.

Requests for a revision of the standards have been made by national organizations of producers, handlers, and processors of wheat, as well as by various advisory boards and committees and by the agricultural trade missions. The major changes that are being offered for consideration are those which were suggested at the wheat standards conference in Washington in September, 1955.

Interested parties may submit written data, views, or arguments to the Director, Grain Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C., not later than Jan. 25, 1957.

Canadian Shipments Of Feeds Increase

WINNIPEG — Shipments of all types of prepared stock and poultry feeds in Canada were larger in the January-September, 1956, period compared with last year, according to the Dominion Bureau of Statistics. September shipments were higher for concentrated and complete feeds but smaller for all other animal feeds.

January-September totals (in tons), with the previous year's comparative figures in parentheses, follow: Primary or concentrated feeds 242,079 (194,256); secondary or complete feeds 1,509,406 (1,278,877); all other animal feeds 421,784 (392,973).

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BRYANT CORN SHELLERS

. . . efficiently, economically and quickly shell and clean the corn in one time and labor saving operation . . . *like putting money in the bin!*

SMALLER CAPACITY MODELS HANDLE 150 to 200 and 400 to 600 BUSHELS PER HOUR.

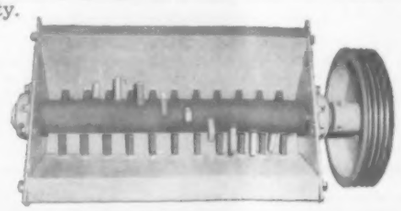
BRYANT No. 30 CORN SHELLER WILL PRODUCE FROM 800 to 1,000 BUSHELS OF SHELLED CORN PER HOUR . . . machine picked corn.

This high capacity, low maintenance sheller provides grain elevators with a fast, efficient and compact machine.

Shelled corn is discharged and cleaned the entire length of the shelling cylinder. Powerful suction is placed on the shelled corn by means of the large air trunk running from the eye of the fan to the shelled corn discharge point. Here, the shelled corn and any foreign material it may contain, drops into the air stream; the foreign material is picked up by the air stream and returned to the fan to be discharged with the cob and shuck. The thoroughly clean, shelled corn is dropped into a screw conveyor or bucket elevator. All units are precision manufactured of heavy gauge materials and arc welded for strength and long lasting durability.

Get 15%-25% More Capacity with the BRYANT COARSE CRUSHER

The Bryant Coarse Crusher, made in three sizes 22", 30" and 36" to meet all requirements, and used ahead of your sheller to protect sheller from tramp iron, stones, and other foreign material, will step-up the capacity of your sheller by 15%-25%! Three sizes handle from 900 to 1,500 bushels per hour.



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BHT
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PROCAINE PENICILLIN
B-COMPLEX MIXES
DRY D_2
MINERAL STABLE D_3
PANTOTHENIC ACID
CHOLINE CHLORIDE

Fortify with Dawe's Choline Chloride. Make sure choline is not a limiting factor in the performance of your poultry and swine feeds. It is essential to vital body functions, to efficient feed conversion and overall health and productivity throughout the life cycle.

The trend is to increased choline fortification of modern-day feeds. Choline levels formerly adequate may not be sufficient for today's high-energy feeds. More Dawe's Choline Chloride is being used by the feed industry than ever before.

Dawe's Choline Chloride 25%: A dry feed supplement containing 25% choline chloride on powdered cereal carrier. Particle size is ideal for thorough dispersion. It is completely free-flowing, non-sticky and handles well in either batch or continuous mixing operations.

Dawe's Choline Chloride 70%: An aqueous solution . . . water clear and non-corrosive . . . for those who prefer this concentration of choline chloride and are equipped to supplement their formulas with liquids.

Dawe's, a primary producer of choline chloride, exercises complete quality control all the way from the raw components of manufacture to the finished product. It meets the highest standards of potency, purity and stability with generous safety margins.

For all individual vitamins and related factors, or for combinations custom-blended and packaged to your specifications, consult Dawe's—fortification specialists serving the feed industry exclusively.

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UP OR DOWN?

By Leonard W. Schruben
Agricultural Economist, Kansas State College

Soybean Prices

It's time to review the soybean situation. Since our last review was written (see Feedstuffs, Sept. 22), many changes have taken place in the world situation. Mostly these changes have added weight to the opinion that farm prices might advance somewhat above the loan rate and hold those advances for much of the remaining season.

It would be well not to overweight the bullish aspects of the current situation. The supplies for the season are large. Total oilseed meal production is expected to total about 6% more than the season that ended in October.

The exhibits which accompany this article are to help you evaluate the current situation in light of past history. Of course history doesn't always repeat and there isn't any way of knowing for sure ahead of time whether or not prices will move up or down. But a knowledge of it will help you in deciding on your procurement and inventory policy.

Price Related to Product Values

Exhibit 1 is designed to point out the relationship which exists between the price of soybeans and oil and meal. To use it you find the price of soybean meal per ton on the bottom scale and read up until even with the price of oil on the side scale. You will be near a diagonal line. Now follow this line to the scale and you will find the value of oil and meal processed from one bushel of soybeans.

For example, suppose meal is $40 per ton and oil is 12.5¢ lb. You find the $40 on the bottom scale and read up until even with 12.5 on the side scale. By reading along the diagonal line you will find the value of products from a bushel of beans is $2.20. No allowance is made for processing costs. This chart is especially handy to use in explaining price relationships to farmers.

Seasonal Price Changes

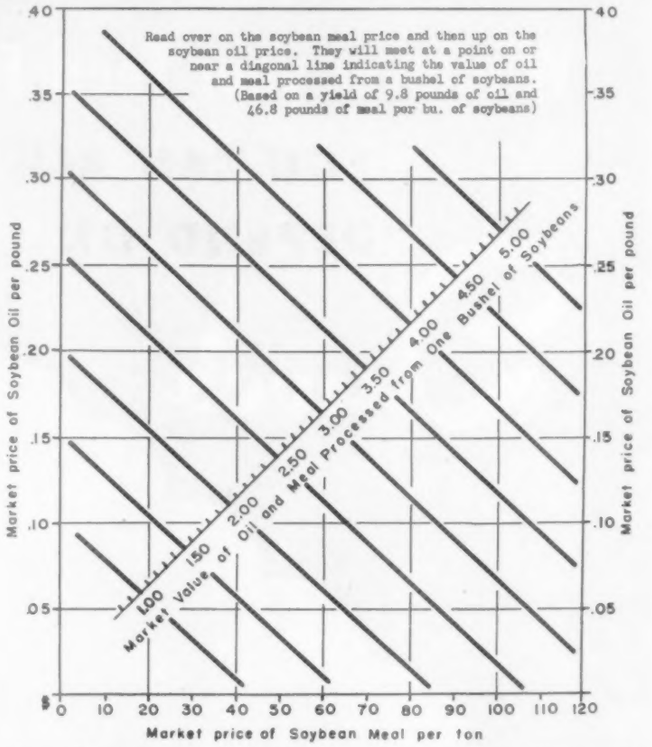
Soybeans display a strong seasonal price pattern. Between 1928 and 1954 prices have gone down from February to March only three times. This is shown in Exhibit 2. In this exhibit price changes from month to month are shown. Remember the prices used were average received by farmers at mid-month.

Each dot represents the price change from one month to the next for each year. At the top and bottom are written the cents per bushel change which was greater than the + or —40¢. One half of the years are included in the shaded area. This shaded area pictures the tendency for prices to go up or down from one month to the next. You can get a good picture of the kind of odds involved in the seasonal pattern by looking at Exhibit 2.

Summary

Past history doesn't necessarily repeat. At this point we can expect some further advances in price. However, it also looks as if this year's price advances have about run their course. If a general war breaks out, of course all bets are off. If the canal is opened fairly soon, we can look for some price declines—perhaps some rather sharp ones, although the price support program can be expected to provide a substantial floor at least for the immediate period ahead.

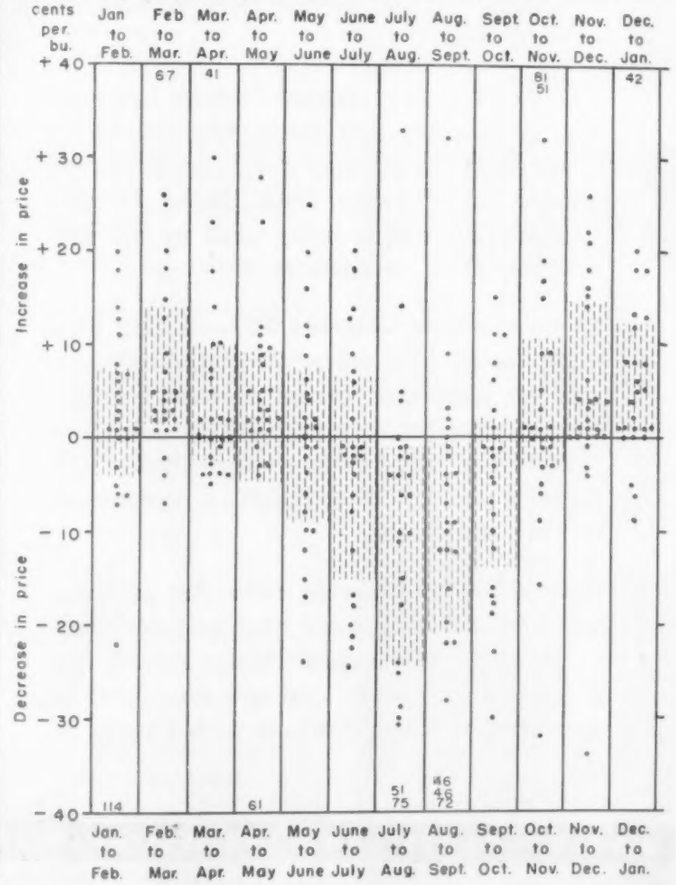
EXHIBIT 1. Market value of oil and meal processed from 1 bu. of soybeans.


Read over on the soybean meal price and then up on the soybean oil price. They will meet at a point on or near a diagonal line indicating the value of oil and meal processed from a bushel of soybeans. (Based on a yield of 9.8 pounds of oil and 46.8 pounds of meal per bu. of soybeans)
Market Value of Oil and Meal Processed from One Bushel of Soybeans
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
Market price of Soybean Oil per pound
Market price of Soybean Meal per ton
$
.40
.35
.30
.25
.20
.15
.10
.05
0 10 20 30 40 50 60 70 80 90 100 110 120

NEW KENTUCKY FIRM

STANFORD, KY. — The Farmers Mobile Mills, Stanford, Ky., has been incorporated by Emery Wilson and James W. Cherry.

EXHIBIT 2. Soybeans: U.S. farm price. Monthly change in price, 1928-54. Each dot represents one year. Half of the dots are in the shaded area.



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Acreage Reserve Payment Schedule Explained by USDA

WASHINGTON—The U.S. Department of Agriculture announced that it does not expect to be in position to deliver payment certificates to farmers who participate in the 1957 acreage reserve programs of the Soil Bank until about harvest time for the latest of the crops for which compliance must be checked.

This delay is necessary to make sure that all regulations of the programs have been met before payment certificates are issued.

Questions have been raised currently about time of payment for acreage already designated under the 1957 winter wheat acreage reserve. The announcement applies both to winter wheat and to all other basic crops which will be eligible for payment certificates under the acreage reserve part of the Soil Bank.

Compliance with Soil Bank acreage limitations is in general on a harvested rather than on a planted acreage basis. Therefore, in many instances compliance cannot be checked until harvest time. A further consideration is that a farmer, to be eligible for any Soil Bank payments, must comply with all acreage allotments (or corn base acreage) established for his farm. This again requires a delay of the final check until about harvest time for the latest of the crops involved.

Where only winter wheat acreage is involved, USDA expects to be in position to start issuing payment certificates about the first of June. Where other acreages are also involved, and multiple compliance checks must be made, certificates cannot be issued until the eventual use of the latest harvested crop is determined.

Payment certificates may be redeemed in cash immediately upon receipt, but certificates issued for participation in the acreage reserve for grains may not be exchanged for CCC-owned grain until after the harvest season for that grain in the area of issue. This means that no 1957 certificate, no matter when received, can be exchanged for any grain until the end of the normal harvest season for that grain.

Meanwhile, payments to farmers participating in the 1956 acreage reserve program totaled $218,296,540.64 in 45 states and Puerto Rico reporting through Nov. 16, USDA announced.

J. Frank Bass Dies

WICHITA FALLS, TEXAS — J. Frank Bass, 57, vice president of two Texas corporations, the Central Manufacturing Co., Wichita Falls, Texas, a rendering company, and Central Industries, Inc., a hide company, died in an automobile accident recently.

Mr. Bass had been associated with the hide and rendering industry in Texas since the early 1920's. His early association was with Nortex Hide Co. of Fort Worth and in 1932 he went into business for himself.

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DELIVERS DAIRY AND POULTRY FEEDS ON SAME TRIP	✓
FEEDS STAY FRESHER MORE PALATABLE	✓
INCREASES MILL CAPACITY AND PROFITS	✓
ATTRACTS AND HOLDS PROFITABLE NEW BUSINESS	✓
TANK TOP DELIVERY TO HEIGHTS UP TO 18 FT.	✓
ELIMINATES SACK PILING, STORAGE AND SEWING	✓
UP TO 1000 LBS. LIGHTER IN WEIGHT	✓
SELF-CLEANING PADDLES PROVIDE FASTEST CLEANOUT	✓

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Tank Top
DELIVERY INTO STORAGE AS HIGH AS 18 FEET

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American Cyanamid Offers Cattle Movie

NEW YORK—A full color, documentary motion picture report on modern cattle feeding techniques employed in the U.S. and Canada is now available upon request to the American Cyanamid Co.

Entitled "Design for Better Beef," the 38-min. picture was produced for the company's animal feed department and is designed to help cattlemen reduce the estimated $164 million annual loss from disease and other causes. The picture is narrated by Walter Cronkite, news commentator for the Columbia Broadcasting System.

A company spokesman says the 16 mm. film is now available to feed manufacturers, feed dealers, county agents, Future Farmers of America and 4-H Club leaders, college and university extension personnel, vocational agriculture teachers and others interested in showing it in classrooms or at meetings and symposia.

To complete the picture, a six-man crew traveled more than 27,000 miles in the U.S. and Canada to expose some 4½ miles of film, company officials said. The documentary illustrates feeding techniques employed in cold areas as well as those used in warm, arid sections of the southwest. Additionally, "Design for Better Beef" contains on-the-spot interviews with nationally-known cattlemen, scientists and average farmers who raise only a comparatively few head of cattle each year. Included, too, are explanations of the function of the antibiotic Aureomycin (chlortetracycline) in cattle rations by scientists engaged in research at American Cyanamid's laboratories at Pearl River, N.Y.

The underlying theme of the film is that cattlemen can substantially reduce the staggering disease loss by employing up-to-date feeding methods which result in healthier, better quality cattle.

A copy of the movie may be obtained by writing to the Animal Feed Department, American Cyanamid Co., 30 Rockefeller Plaza, New York 20, N.Y.

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Dow's New Amino Acids Pilot Plant Put in Operation

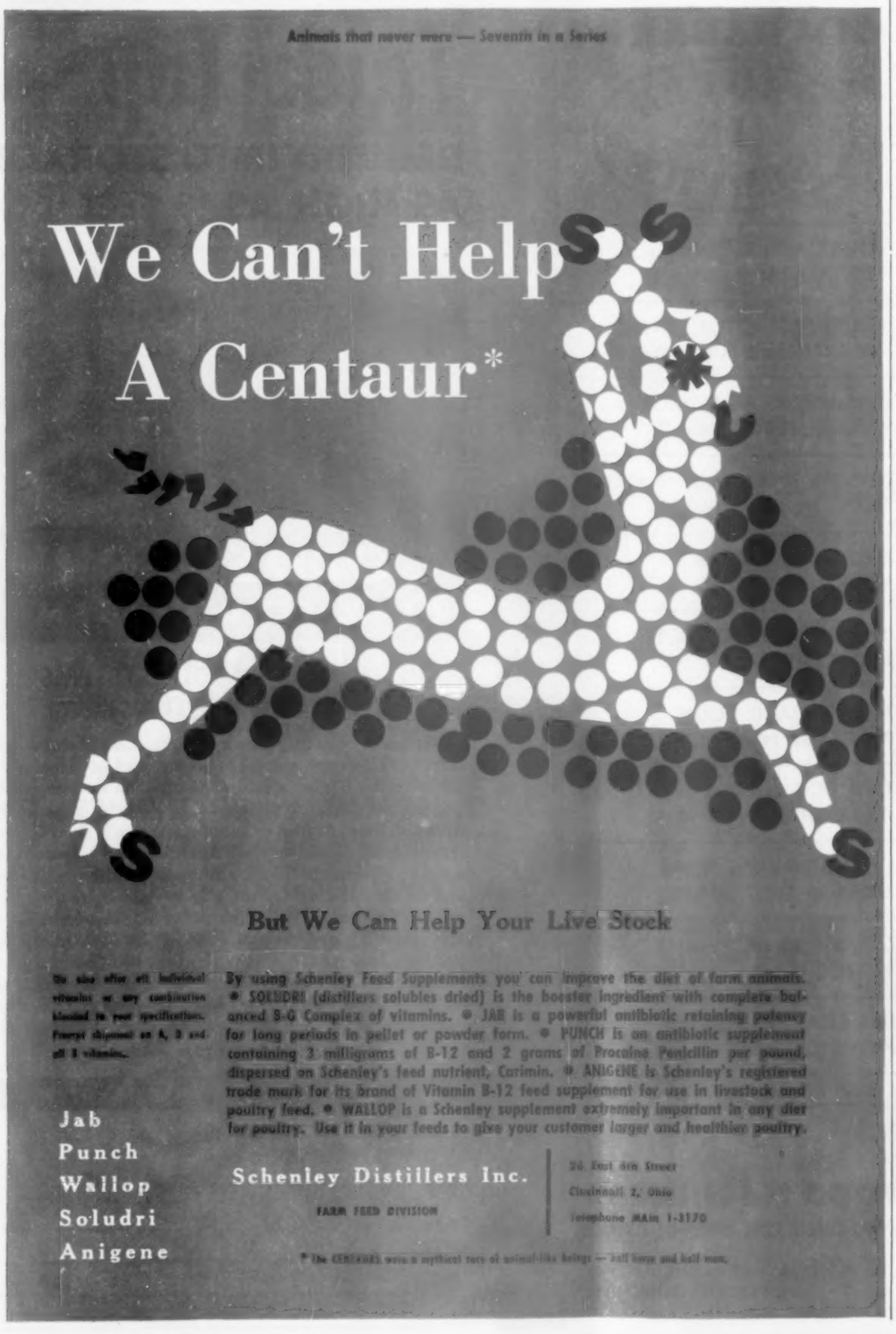
MIDLAND, MICH.—Increased activity by the Dow Chemical Co., Midland, Mich., in the amino acids field was announced as a new $500,000 pilot plant moved into production.

The new facility is capable of producing all 18 of the amino acids presently sold by Dow, although in actual practice only 15 will be produced in the new plant. The other three amino acids, glycine, methionine and acetylmethionine, are already produced in commercial quantities.

The company's amino acids include all which are essential to human nutrition except threonine. It will be produced in the new plant when released from laboratory studies it is now undergoing.

Amino acid research was started by the firm in 1942 under the direction of Dr. E. C. Britton, 1956 winner of the Perkin Medal, industrial chemistry's highest award. The new pilot plant is under the supervision of Dr. R. P. Perkins, director of the Edgar C. Britton Research Laboratory. Dr. H. C. White is in charge of amino acid development.

Simultaneously with process development, intensive research on the role of amino acids in animal nutrition has been conducted by the laboratories under Dr. J. E. Johnson, director of agricultural chemical research. To further pursue this research, numerous cooperating laboratories throughout the country have been supplied with amino acids manufactured by the company.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No. 5611—Bulk Handling

A new truck-mounted bulk feed and grain handling system designed to cut handling costs and speed up loading and hauling, is announced by the West Fargo Manufacturing Co. Called the Westgo Hydra Feed-O-Vator, this handling system consists

of two hydraulically powered 7-in. augers; one is mounted in the floor of the truck box and the other may be swung around and used in vertical position to load feed or grain into bulk storage bins, or to load or unload trucks. Any required number of floor openings can be used. Claimed to be a one-man system, it is said to have added utility in that the truck box may still be used to haul sack feed, or may be used to handle mixed loads of sacked and bulk feed and grain at the same time. Although the system is designed for sale as a complete unit, the floor auger and the vertical auger, complete with hydraulic motor, may be purchased separately. For complete information on the product check No. 5611 on the coupon and drop it in the mail.

No. 5608—Hog Book

A new 40-page booklet covering all phases of hog raising has been announced by Wirthmore Feeds. Well illustrated, it contains recommendations for caring for sows and newborn pigs, tells how to feed and manage through growing and finishing periods, and gives suggestions on housing, breeding, health and sanitation. It's available without cost by checking No. 5608 on the coupon and mailing it to Feedstuffs.

No. 5609—Attachment

Sprout, Waldron & Company, Inc., has announced a new development to be used as an attachment to its Feed Piper Trucks. This is in the form of a cyclone attachment which separates the air from the feed when unloading feed from a Feed Piper Truck into anything other than a closed system. This is an optional piece of equipment which makes the pneumatic bulk truck effective to the feed miller for range

feeding operations as well as other feed deliveries where closed system deliveries are not possible, company officials said. To secure more complete details check No. 5609 on the coupon and mail it.

No. 5607—Rodent Bait

Literature telling of the merits of the rat and mouse bait called by the trade name, Rough and Ready, and price details are now available to dealers, according to J. T. Eaton & Co., Inc. The product is a blend of grains and other foodstuffs plus war-

farin. It is said to be odorless and tasteless and is packed in a patented, ready-to-use, disposable feeding box. For customers who prefer to mix their own bait, the concentrated product is packaged in premeasured sizes. Dealers may secure literature and price details by checking No. 5607 on the coupon and mailing it to this publication.

No. 5610—Bulletin

The accurate feeding of two or more liquids and/or solids into continuous processes by gravimetric or volumetric means to suit almost any process requirement can be accomplished by the proportioning equipment described in a four-page bulletin 10-N1, according to the Omega Machine Co., division of B-I-F Industries, Inc., Providence, R.I. The bulletin illustrates and gives specification data — capacities, accuracies, ranges, types of materials handled, etc.—on many types of feeders and proportioning pumps, and also shows typical control panels. It pictures and describes representative installations. The bulletin lists many industries served by this equipment. For a copy of the bulletin check No. 5610 on the coupon and mail it to this publication.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 5551—Dog food, Vitality Mills, Inc.

No. 5552—Water tube boilers, Nebraska Boiler Co., Inc.

No. 5553—One-man push button loading of boxcars and trucks, R. T. Sheehan Co.

No. 5554—Liquid compounded fat for alfalfa dehydration and feed mixing, Swift & Co.

No. 5555—Feed fortification product, New England By-Products Corp.

No. 5556—Pneumatic feed mover, Dunbar Kapple, Inc.

No. 5557—Booklet on vaccination of poultry, Dr. Salsbury's Laboratories.

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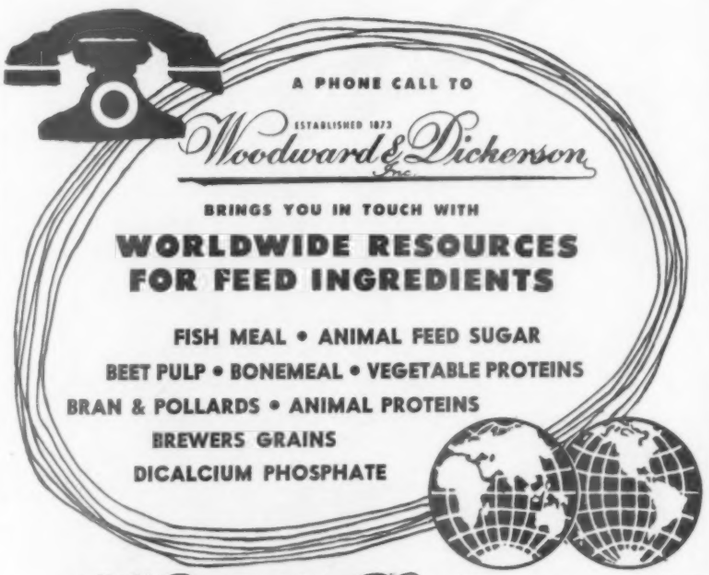
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No. 5566—Pre-fabricated cage layer house with automatic ventilation, Permco Manufacturing Co.

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No. 5568—Niacin applications in animal nutrition, Tar Products Division, Koppers Company, Inc.

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Dairy Nutrition Research

Feeding the Young Calf; Bloat Control Research

By Dr. Norman L. Jacobson
Iowa State College

EDITOR'S NOTE: Various aspects of dairy nutrition research at Iowa State College were discussed by Dr. Norman L. Jacobson at this year's Iowa Nutrition Conference at the college. The accompanying article includes material from the two principal topics which Dr. Jacobson covered—calf nutrition and bloat research findings. He provides some basic information on the nutrition of the calf and outlines feeding systems and milk replacement and starter formulas which have been used. Dr. Jacobson also describes some of the bloat control research at Iowa State, where certain treatments have been tested. This article is adapted from a transcript of Dr. Jacobson's talk which was made by the Feed Institute, Des Moines.

CALF NUTRITION: One of the main categories of dairy nutrition research at Iowa State College is that dealing with the young calf.

Why do we give so much attention to the young calf? Well, I think that we might briefly explain that on this basis: The period from the time it is born until it is about three months of age is one of the most critical periods of the dairy animal's life, and during this period we must give very careful attention to its needs.

If we care only to produce eventually a calf which can ruminate, but are not concerned about the economic aspects, we don't have to worry particularly about what feed combinations we use. If we leave the calf with the cow and allow it a liberal amount of milk, thus allowing it to convert itself to a hay and concentrate user whenever it chooses, then we don't have any great problem. But most of us are interested in doing this job as efficiently as possible so long as we don't interfere with the ultimate producing ability of this animal. It is in this area, of course, that feed people should be, and are, primarily concerned because the milk replacers and calf starters are two of the items which the feed man can furnish and is furnishing to the farmer in order for him to convert this calf to a ruminant at the lowest possible cost.

Veal Production

I am not discussing veal production here. If we are concerned with veal production, then we must think in terms of other feeding systems because we must give the young calf a large amount of feed to produce a good veal carcass. The carcass must have a reasonable amount of fat or it will not be top quality veal. This cannot be done by most of our limited milk or milk replacement feeding systems. At the present time the only really good way of producing

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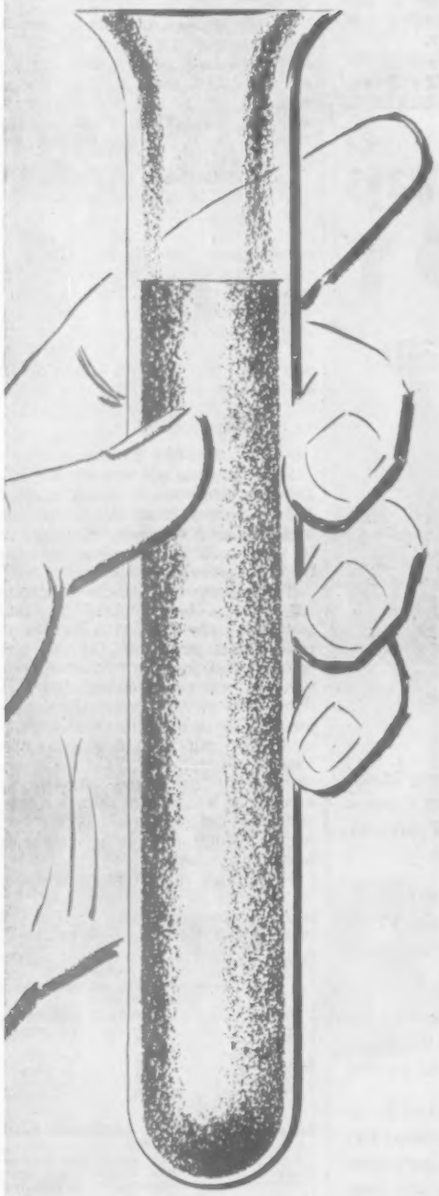

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veal is feeding large amounts of whole milk.

I think that offers a challenge. I think that more attention should be given to development of rations which will produce the type of veal that is wanted, at a relatively low cost. Certainly the systems that we are using at the present time are not efficient. In fact, in most cases they are not even practical.

Herd Replacements

However, if we are interested in herd replacements, we can raise our calves more efficiently and not use large quantities of expensive feeds. They can be grown a little more slowly in early life and they will still become just as good producers, we think, when they are mature. Furthermore, they become ruminants more rapidly when they are raised by this system, and some of the problems of the non-ruminating animal are eliminated earlier.

In calf nutrition, we are interested in taking the young calf and converting it to a full-fledged ruminant, one which can use hay and grain effectively.

What happens to the stomach of the young animal when this transition is being made? Percentage-wise, the change that occurs can be seen in Table 1. The rumen represents about 25% of the total capacity at birth; at three to four months, about 75%. The reticulum, or second compartment, and omasum, or third compartment, don't change much in comparative size, but the abomasum (true stomach) has decreased from 60% to about 11%.

The true stomach is the only compartment which is doing any real work when the calf is in a non-ruminating state. It constitutes the major part of the stomach at this stage.

The transition occurs in seven or eight weeks in most feeding systems.

In the change, the rumen becomes much larger and can handle the large amounts of dry feed that the calf is called upon to use. The abomasum or true stomach is not smaller, but it is proportionately smaller than it was in the very young calf.

In conection with the data in Table 1, it should be pointed out how close the four-month-old calf is to the mature, as regards relative stomach compartment size. It has almost attained this mature proportion by the time it is three to four months of age. This cannot occur except in a system where the amount of milk or milk replacement is limited and where the calf is given a high quality calf starter and an adequate amount of hay, so that it can convert quickly to this ruminant state.

Feeding System

What kind of system can we use? I will outline one of many systems. I don't propose that this is the only, or necessarily the best, schedule, but it represents one system that can be followed with success.

Table 2 shows a whole milk feeding system based upon the birth weight of the calf. It indicates the milk (as a percentage of the birth weight) fed each day after the calf has been allowed to remain with the dam for about three days. This amounts to about 340 lb. of milk for a 100-lb. calf, and proportionately less for a small calf. That represents somewhere near the minimum amount of whole milk that one ought to feed to get reasonably good growth in the young calf being raised for herd replacement.

How much milk replacement does it take to do the same job? This also is shown in Table 2. If a milk replacement that contains 14 or 15% solids is used and is fed in accord-

Table 1—Relative Size of Stomach Compartments

Name	Birth %	4 Mo. %	Mature %
1—Rumen (Paunch)	25	75	80
2—Reticulum	5	5	5
3—Omasum	10	9	7
4—Abomasum (True stomach)	60	11	8

Table 2—Milk and Milk Replacement Feeding Systems

Weeks	Lb. daily/100 lb. birth wt. W.M. System	M.R. System (Following 3 d. on Colostrum)
1	8	8
2	8	9
3	8	10
4	8	9
5	7	7
6	6	6
7	4	4
8	0	0

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ance with this plan, it will produce about the same condition and weight gain.

By the time the calf is a little over seven weeks of age, it will be a full-fledged ruminant. The rumen will be doing its job and the abomasum then will no longer be the only stomach compartment which is functioning to take care of the needs of the animal.

I am not going to discuss the composition of milk replacements in detail. There are many possibilities. I simply want to point out some of the extremes. Replacement 1 in Table 3 is a very simple one, composed largely of dried skim milk, but supplemented with vitamins, minerals and an antibiotic. The vitamins would be primarily A and D, and perhaps E. The minerals should include a trace mineral mixture, and the antibiotic probably would be Aureomycin or Terramycin. These are the two antibiotics which have been used frequently and which seem to be most effective in calf nutrition. The most work has been done with Aureomycin. Terramycin has shown response similar to Aureomycin in most cases.

How much antibiotic should be added to a milk replacement of this kind? It should be at least 20 milligrams per pound. I personally think that 30 or 40 milligrams in many cases would be much better.

Replacement 2 is similar except that it has added fat, which increases the TDN value from about 80 to almost 100, an increase which to me is exceedingly important because the amount of energy in Replacement 1 is a little low.

I believe that putting in some fat, 10% or more, is highly desirable.

Replacements 3 and 4 are somewhat more complicated, one containing added fat and one not containing added fat. Numbers 3 and 4 generally are cheaper than the first two, but it depends on the relative prices of ingredients.

These milk replacements ought to contain materials that are readily utilized by the young calf. We don't know enough about what the calf can utilize and what he can't utilize, but we are basing the present suggestions upon experiments that have shown that the ingredients I have included here are quite satisfactory.

Table 3—Milk Replacements

Ingredient	1 %	2 %	3 %	4 %
Dried skim milk	98.6	86.4	48.0	45.6
Dried whey product	...	...	12.5	8.0
Dist. dried solubles	...	...	15.0	15.0
Oat flour	...	...	5.1	...
Blood flour	...	...	10.0	10.0
Dextrose	...	...	7.0	7.0
Fat	...	12.0	...	12.0
Dicalcium phosphate	...	...	1.0	1.0
Vit.-min.-antibiot.	1.4	1.4	1.4	1.4

Starter Formulation

Starter formulation is another area in which feed people should be interested because they are supplying starters to the farmer. Starter 1 in Table 4 is a very simple starter with only five ingredients. Molasses at a 10% level (Starter 2), we have found, increases palatability; the calf eats more and therefore it shifts over to the ruminant state more quickly.

The third starter is even more complicated in composition, and it is a little more palatable or acceptable to the calf than the others. Trace minerals probably should be added. Antibiotics, if added, should be at a level of not less than 10 milligrams per pound. I believe that 15 or 20 milligrams would be better in many cases than the 10 milligram level.

Table 4—Calf Starters

Ingredients	Starter 1 %	Starter 2 %	Starter 3 %
Ground corn	40	28	20
Ground oats	30	30	22
Soybean oil meal	28	30	20
Wheat bran	..	..	10
Distillers dried solubles	..	..	15
Molasses	..	10	10
Steamed bone meal	1	1	..
Dicalcium phosphate	..	..	2
Salt	1	1	1

BLOAT RESEARCH: Another area of research which I would like to discuss is our work on bloat. For the past three years we have had a reasonably intensive study of bloat at Iowa State College. Some periods have been highly productive, some not so much; some have been quite encouraging and some of them quite discouraging. As anyone who has ever

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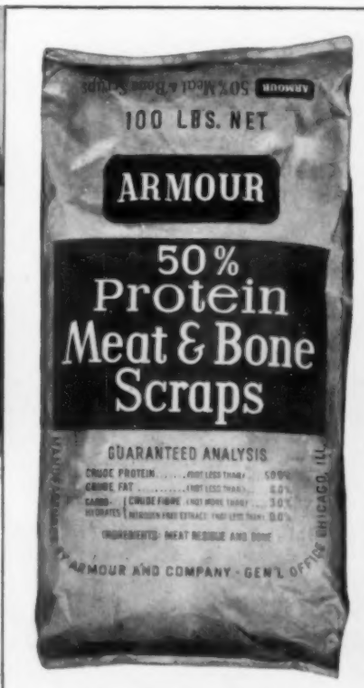

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worked with bloat knows, this disease often appears when least expected.

During a recent period there was more bloat in our experimental animals than had been seen at the college in the past five years. When the rains came after a period of drouth, there was a tremendous increase in the amount of bloat, and therefore we were able to study bloat under extreme conditions. We had the type of forage that apparently would produce bloat in nearly any animal that was placed on the pasture. It wasn't a matter of just one or two out of a herd of 15 or 20; it was nearly all of them.

One type of bloat is that in animals that are chronic bloaters. It is not peculiar to any type of herd or ration. There are many herds in this section of the country that have animals of this type. They usually are not seriously bloated, to the extent that they are likely to die, but the bloating is serious enough so that they don't eat enough feed to be thrifty, and therefore they generally are an economic loss.

Another type of bloat which I would like to mention is "feedlot" bloat. Animals with this type don't die as often as animals bloated on pasture, but there are some deaths. This type of bloat occurs on rations which contain a large amount of concentrate and a small amount of roughage.

Treatments

There are some treatments that have been and are being proposed for use in control of bloat. We made some studies last year of detergents. One product we used reduced bloat, but the detergent was difficult to administer and large amounts were required to be effective.

This year we have been working on two types of control. One is penicillin, and the other is a water dispersible oil.

Our work with penicillin is variable, and we do not wish to make any conclusions at the present time. Some work elsewhere suggests that penicillin may be effective. On the other hand, I think we should be cautious in accepting new methods of control until we have good evidence in support of the control measure.

When bloat was mild, there seemed to be some reduction in the bloat, but the severe type of bloat apparently was not reduced by penicillin. We gave the penicillin by capsule, 75 milligrams per animal per day at about 8 a.m. and fed the animals shortly thereafter. Weight gains did not seem to be affected by penicillin. More work is needed to clarify the response to this antibiotic.

Oil Treatment

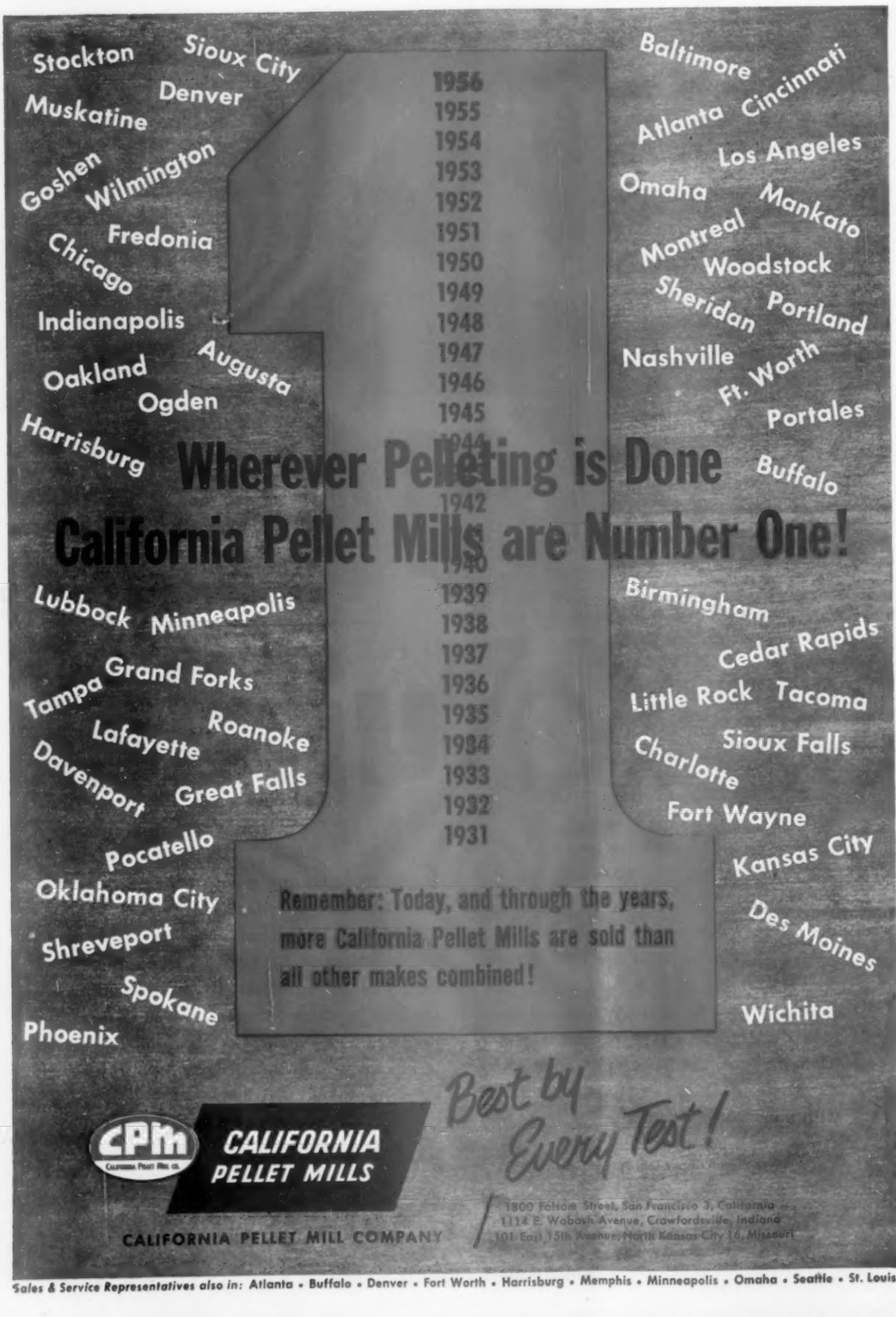
In pasture work, we have used a different type of treatment—a water dispersible oil which was fed in the drinking water. Under the conditions of our experiment, this oil very sharply decreased the amount of bloat, and if we got enough oil into the animal, it completely eliminated the bloat.

Again I wish to be cautious. I don't mean that this is necessarily the answer to our problem, but it is an interesting observation and it helps us in studying the difference between bloated and non-bloated animals, and it gives us a bench mark from which to work, since it did reduce bloat so effectively.

We had two groups of about 10 animals. Among the animals receiving the high level of oil, we had essentially no bloat. Among the others, some animals died and many animals needed treatment (with stomach tube, trocar or otherwise).

We need to determine more about the digestibility of this particular product, to learn more about the effect on the animal in other ways, to determine whether this product contributes measurably to the nutrition of the animal (in addition to the reduction in bloat), and ultimately to evaluate the economic aspects.

Three products then—detergents, penicillin and a water dispersible oil—are the ones that have received major attention in our bloat research. I do not wish to give the impression that this is the only thing we are doing on bloat. We are making an intensive study of the characteristics of the rumen ingesta. There is a very distinct difference between rumen fluid of a normal animal and the rumen ingesta of an animal with a foamy type bloat, which is characteristic of most animals that bloat on pasture. It seems that part of the control must be associated with the reduction or elimination of this foamy ingesta.



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SPECIALIZED SESSIONS

Continued from page 15

have had a chance to slow up production by uneven wear of a die face," Mr. Morse said. Proper and adequate lubrication of roll bearings was also advised. Frequent greasing in small amounts was suggested.

Turning to die surface study, the speaker said that the surface should be tough enough to withstand an expansive and contractive stress and hard enough to withstand abrasion and to grow harder through work hardening as the abrasion is applied.

James M. McNeil, Pillsbury Mills, Inc., Minneapolis, was chairman of this specialized session, and Chester N. Hultberg, California Pellet Mill Co., assisted in answering questions. On the question of life of a roll or die, Mr. Hultberg recommended that die and roll life be the same, that both be replaced at the same time. He said dies run anywhere from 1,000 to 15,000 tons, that this can be normal life. Average life of a die was 3,000 tons, according to the Midwest cost study, Mr. Hultberg noted. The time depends on various factors. He recommended lubricating rolls at regular intervals of two to four hours, with the amount such that seals are moist at all times. If a die is ground, the roll should be done, too, so that both are the same, but most mills are not grinding. If wear is uniform, the situation should be all right, Mr. Hultberg indicated.

Air Handling

The various uses of air in a mill were outlined in the specialized session on air handling. Participating were Brown F. Jenkins, Jones-Hettelsater Construction Co., Kansas City; David Armstrong, The Fuller Co., Kansas City, and Ray Shook, Sprout, Waldron & Co., Muncy, Pa. James E. Leker, Staley Milling Co., Kansas City, was chairman.

Air is used for dust control, cooling and drying, to assist grain cleaning and grinding and to transport materials, Mr. Jenkins said.

Each dust control system is different, he states. The cost of the system is an important factor in deciding what type to install. There are two types of systems. One has all suction branches open all of the time, and once the system is balanced very little attention is required except for an occasional check to see that the lines are clean. The other system is one in which only a few of many branches are designed to be open at any one time. This type requires more attention.

In using air for cooling and drying, Mr. Jenkins pointed out that the important consideration is to have sufficient air to carry off heat and moisture without waste. In the use of air to facilitate grain cleaning and grinding, the air pulls materials through screens, thus increasing the capacity, and pulls it through the grinding operation, insuring a more uniform grind.

Pneumatic Systems

Mr. Armstrong explained and demonstrated the fluidizing method of handling materials. A miniature airslide car was used to show how when air is pumped into the material, fluidizing it, gravity does the actual work of carrying the material out of the bottom of the car. Feed ingredients most easily handled this way include alfalfa meal and soybean oil meal, he said. Cottonseed oil meal and phosphate rock have also been handled in the airslide car, in lesser amounts. Dense materials cannot be fluidized effectively, he pointed out. He also mentioned other pneumatic unloading and conveying systems.

Two different types of air handling systems were explained by Mr. Shook. With a pressure system, he said that soybean meal can be unloaded at a rate of 4,200 lb. an hour. Unlike in a fluidizing system, he said, there is no problem of clogged lines when the system is stopped with material still

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in the lines. He demonstrated this with a scale model.

The vacuum conveying system is closed, he explained. For that reason, he said, it does not reduce moisture in grain, as will a pressure system where the temperature increases as more pressure is applied. Mr. Shook illustrated vacuum system uses, as on a hammer mill, moving pellets to a cooler, unloading cars, etc.

He mentioned an installation at Albers Milling Co.'s Kansas City plant where materials go directly from outside bins to the scale hopper in the mill through a pneumatic system. Accuracy was said to be within 2-3 lb.

Pneumatic bulk trucks and other uses of air also were discussed.

Comparing air handling with mechanical handling systems, the panel members said that air systems utilize less space and have fewer parts to maintain.

Bin Flow, Proportioning

Bin flow and assembling and proportioning of ingredients came in for attention in one of the sessions. Lowell Judd, Albers Milling Co., Kansas City, was chairman, and panel members were Lee Chambers, Albers, Los Angeles; John Metzger, Permaglas division, Sprout, Waldron & Co., Lake Charles, La., and William Young, Richardson Scale Co., Chicago.

Mr. Metzger described a mechanized storage unit, equipped to unload itself, with electronic controls and electric energy operating it. The unit includes a Permaglas bin of glass-protected steel and a mechanical sweep arm bottom unloader, designed for cutting, clawing and sweeping its way through material on the bottom and moving it to an opening on the side.

He said the unit provides: an orderly unloading pattern, with the oldest material used first; warehousing of large amounts on a small area; protection against fire, weather, insect infestation; cleaner, safer mills. Dust is practically eliminated, Mr. Metzger said, with conveying closed, too, and under vacuum. Mechanical storage also is a means of insuring quality by eliminating human error, Mr. Metzger said, and the unit provides a dependable basis for moving materials to electronic batch proportioning systems.

The sweep arm unloader also can be adapted to structures other than Permaglas bins, he said, but a new, smooth floor should be put in.

Eliminating Bridging

Mr. Chambers explained eliminating of bridging in bins by means of sonic vibration or sound waves. He also referred to other methods for meeting this problem, including hammers, pneumatic or electric vibrators on hoppers, chains with inverted cones, rubber boots or blisters in a bin which can be inflated with air. Each has its limitations, he noted.

A sonic generator works best if installed on the hopper at the bottom of the bin, with the waves working toward the bridge. It also has been used on the top of a bin if the cavity goes all the way through. An opening in the bin is required where the unit is installed. Another application has been the use of a portable unit on hopper cars, and the unit can be dropped inside a bin. It is used only if materials hang up and a cavity is created.

The unit is air-operated, with 50-100 lb. of pressure. Mr. Chambers said a sonic device is made by J. C. L. Engineering Co., Los Angeles, and costs $160. The bin attachment costs $20 to $25.

Mr. Young explained an automatic proportioning and batch mixing system with electronic controls. The first point to consider is materials handling, determining type of bins, type of feeders, bin capacities and shapes, formulas, etc. He also described weight sensing devices, and he explained instrumentation, including assigning of weight selectors to ingredients, compensation for lags in stopping motors, tolerance control, self-monitoring of system, recording methods, etc.

A fourth point is the integrated control system, with relays, buttons, pilot lights, etc. The system can be set up to repeat batches automatically. It includes certain alarms. Single or double mixers can be integrated, and the unit can control the distribution of mixed feed in the mill as well as mixing. The motor starter center also can be integrated. Liquids also can be handled on the system, Mr. Young said, being weighed or metered in.

Additives, Premixing

Premixing micro-ingredients and regulations affecting medicated feed production were the subject of discussion in one of the specialized sessions. Robert C. Wornick, Chas. Pfizer & Co., Inc., Terre Haute, Ind., presented an extensive report on premixing operations, and Dr. S. F. Kern, Eli Lilly & Co., Indianapolis, outlined certain medicated feed regulations of the Food and Drug Administration. Larry Alley, Pay Way Feed Mills, Kansas City, was chairman.

Noting the rapidly increasing use of micro-ingredients in feeds and the increased importance of good premixing, Mr. Wornick presented a large amount of information which he had assembled on active ingredients, diluents, equipment, methods, statistical quality control and tracers used in premixing.

Factors to consider in selecting micro-ingredients include the supplier, concentration, particle size (which should be fine enough), physical properties (such as free flowing characteristics), stability tests, overages (which can cost thousands of dollars annually if excessive), animal tests and economic considerations. In considering diluents, factors include presence in formulas, screen analysis, particle shape, surface texture, density, pH, moisture, fat stability, trace minerals, nutritive value and palatability.

A survey indicated that the principal types of equipment for premixing are horizontal ribbon, double cone and twin shell, vertical and muller mixers. The horizontal ribbon type is most widely used and is re-

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garded as quite versatile. End-over-end mixers also are widely used and are considered most successful for dry blends, Mr. Wornick said. Mullers are presently used by only a few manufacturers but are said to do an excellent job where coating, smearing or de-agglomeration actions are desirable. Few vertical augur types are used for premixing and should be evaluated for specific premixing jobs.

Wide variations exist among mills in actual premixing operations. This includes batch size, concentrations, premix types, order of addition of ingredients, and conveying methods. Problems associated with "unmixing," dustiness, static electricity and stability require careful scrutiny.

Dr. Kern explained some of the FDA regulations, including new drug applications. The drug supplier obtains an effective new drug application—demonstrating the safety of the medicated feed containing a specified amount of drug and providing certain other information—and supplements it in behalf of the feed manufacturer. Since the feed intended for market by the feed manufacturer will necessitate changes in composition and production from that described by the drug supplier, a supplemental application providing for the changes is necessary.

Changes to be submitted are (1) feed formula, including amounts of ingredients; (2) description of methods, facilities and controls in producing and packing the feed; (3) proposed feed labels. Where bulk distribution is contemplated, such must be stated. Where two or more concerns are involved in manufacture or packing of the feed, areas of responsibility must be defined. Dr. Kern noted that effective storage control is one of the important factors under point No. 2. FDA advocates that the amount of drug added to a batch be checked by two persons.

Some feed manufacturers, Dr. Kern said, mistakenly believe that if a supplemental application is effective for a feed marketed by one manufacturer, others can market such feed without obtaining their own applications. It is the responsibility of each firm to obtain an effective supplemental application for its own product.

Warehousing, Shipping

Warehousing and loading out account for a big share of feed mill labor costs, and advice on this subject was given by J. D. Johnson, General Mills, Inc., Minneapolis, panel chairman; Oscar Holland, Quaker Oats Co., St. Joseph, Mo., and C. E. Swick, Kent Feeds, Muscatine, Iowa.

Mr. Holland presented a film showing preparation of cars and loading—including cleaning; patching holes with cardboard on walls and tin on floors; papering walls with 60-lb. kraft paper 48 in. wide, applying paper with paste made from flour and water; using cardboard to protect from door post; putting fiber chipboard on take-it-or-leave-it pallets so that this will go on floor in cars under bags; handloading in doorways and using ¾" glassine tape to secure bags in doorway; putting cardboard in doorway for loads of 30 tons and over; using 48x50" pallets; trying to keep sacks away from sides.

Bulk System

Mr. Swick described his plant's system of using fork trucks and steel bins, with bottoms that open to empty, for storing and loading out bulk feeds. (The system and equipment were explained in detail in the May 26 issue of Feedstuffs.) The bin is held over a truck and then dumped with a third hydraulic valve on the fork truck. The boxes each hold a ton of feed and are 3 ft. deep and 4x5 ft. horizontally. The system also has been used to load cars. The bins are made by the Fab-Weld Co., Philadelphia, and cost $110, Mr. Swick said.

Other points brought in the discussion:

Mr. Swick said he does not use take-it-or-leave-it pallets; he uses steel pallets and said bag breakage had been cut; also he figures that savings have been made by eliminating repairs and replacement of wood pallets. Bags are handled from pallets to car. . . . Other types of bulk bins, described by Mr. Johnson, include a bin with a hopper on the bottom and a slide which is pulled, and a bin which is tipped and emptied with a fork truck. . . . LP gas has now been approved for fork lift trucks by insurance underwriters. . . . A cantilever belt conveyor which slides in over the top of grain doors was described as a good system for loading bulk cars. . . . A broom-like affair made of wood or metal is good for looking for nails in cars. . . . For fumigating bulk cars, a lindane spray can be used. . . . When part pallet loads are ordered, the remaining parts are put back in the proper place in the warehouse, Mr. Holland said. Orders at his plant now seem to come in amounts of 30 bags and multiples of 30. . . . Six inches space should be left around each pallet load in the warehouse. . . . A sound device is available that produces a sound inaudible to human ears but which will keep birds out of a warehouse.

LIQUID HANDLING

Continued from page 16

the others is better protected; it will be possible to periodically empty and inspect and clean the tanks; and a systematic first-in, first-out inventory is possible. Also, it is possible to put partitions in a single tank.

To keep moisture out of the fat, the tanks should be properly vented. Also, the tank should have a sloping bottom so that any moisture accumulating there will be carried off. Steam coils should be of black iron and about 1¼ to 1½ in. in size, and the pipe should come in at the top, go down through the fat to about 1 ft. from the bottom where the coils are laid. To keep fat at pumping temperature and at the same time prevent overheating, an automatic temperature control valve is almost a necessity.

For pumping, Mr. Lucas said, a gear pump is best suited and should be equipped with a pressure relief valve. He recommended a 2-in. pump with a 3-in. pipe on the inlet side. The pump should be iron, and all pipes and valves should be iron or steel. Pipes from storage to working tanks should be 2 in. in size. Air, not steam, should be used to blow fat back through pipes to storage. If the distance is great, heating and insulation of the fat lines are helpful. Cross fittings and T's should be used in place of elbows and there should be more unions than customary in the line to facilitate rodding out of a blocked pipe.

Fat in a working tank should be kept at a temperature no lower than 120°, and in the winter it perhaps should go to 160 or 170°.

Continuous Mixing

Discussing application of fat, Mr. Lucas said that "we have decided on a continuous system with the fat applied in a high speed blender or finisher, and we believe the advantages far outweigh the disadvantages." With a batch system, he said, there

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may be balling in the feed, labor in cleaning mixers, etc.

Needed in a continuous system, he said, are a working tank, positive action pump that can be adjusted, an accurate meter, a continuous feeder with a variable speed drive and a high speed mixing chamber. Automatic flow meters can be used in conjunction with automatic continuous feeders, thus taking the responsibility for accuracy from the operator and possibly eliminating the operator.

Another advantage of continuous mixing is that other liquids can be added simultaneously in the same blender. If the only liquid being handled is fat, it can be sprayed into a batch mixer and in some feeds results are satisfactory, Mr. Lucas said.

Questions-Answers

Following the prepared talks on liquid handling, there was a question-and-answer period. Some questions on other aspects of feed production also were included, with answers from speakers and men in the audience. Following are some of the statements made in answer to questions:

Liquids: It is not necessary to heat fish solubles to 140°, but better dispersion results. The possibility of corrosion may be increased at 110 to 140°, but it is not a major consideration. . . . Electricity may be used to heat fat pipes or drums but is too costly for large tanks. It's easier to install wire on pipe. . . . Fat may be held in storage tanks at 120° for extensive periods, and in work tanks the temperature may go up to 180 or 190°. . . . A molasses-type mixer will do an acceptable job on fats. . . . Heating coils for fat storage tanks may be 1¼ to 1½ in. in size and a foot apart across the bottom. . . . Thickness of dies in pellet machines can be increased to help take care of problem of soft pellets with fat added to feed. Fat helps in pelleting feeds containing milk products or high sugar levels. . . . Vegetable oils have been used for adding energy to feed, but cost is a limiting factor. . . . If there is excessive moisture in fish solubles, mould forms. . . . Suggested as a meter for a continuous mixing system for fish solubles was a Hayes meter. . . . A strainer between the fat supply tank and meter was suggested to protect the meter. . . . Research indicates no effect from phosphoric acid on stability of vitamins and antibiotics. . . . When phosphoric acid is used in feed, calcium is supplied by limestone; some of the acid comes in direct contact with the limestone, and the acid is partially neutralized. . . . Carbon dioxide is given off when phosphoric acid is combined with limestone; there is rapid neutralization and the need for stainless steel may be eliminated in certain places.

Other: Some figure that it is worthwhile to invest about $25,000 in new equipment to eliminate one man, paying it off in five years. The cost study can be used to evaluate savings from equipment. Equipment investment in the "model" mills in the cost study was about $9,000 per man in the 30-ton-per-day mill, $17,000 to $18,000 for the 100-ton mill, about $17,000 for the 200-ton mill. . . . Use of bentonite in the feed and fineness of grind may help the fines problem in range pellets. . . . Some like mechanical agitators better than compressed air for agitating liquids. . . . One mill unloads 10 tons per man-hour using a payloader. In another firm, one man can open the doors and unload four cars a day with a payloader; they've gone as high as 200 tons but average 160 tons. Another mill unloads three cars a day. . . . A secondary dust filter system on a cyclone from a hammer mill can't be justified on the value of material alone, one man said, but there are secondary benefits such as better working conditions, community relations, etc.

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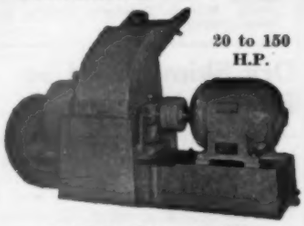

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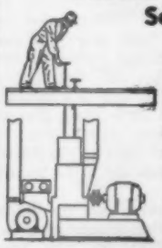

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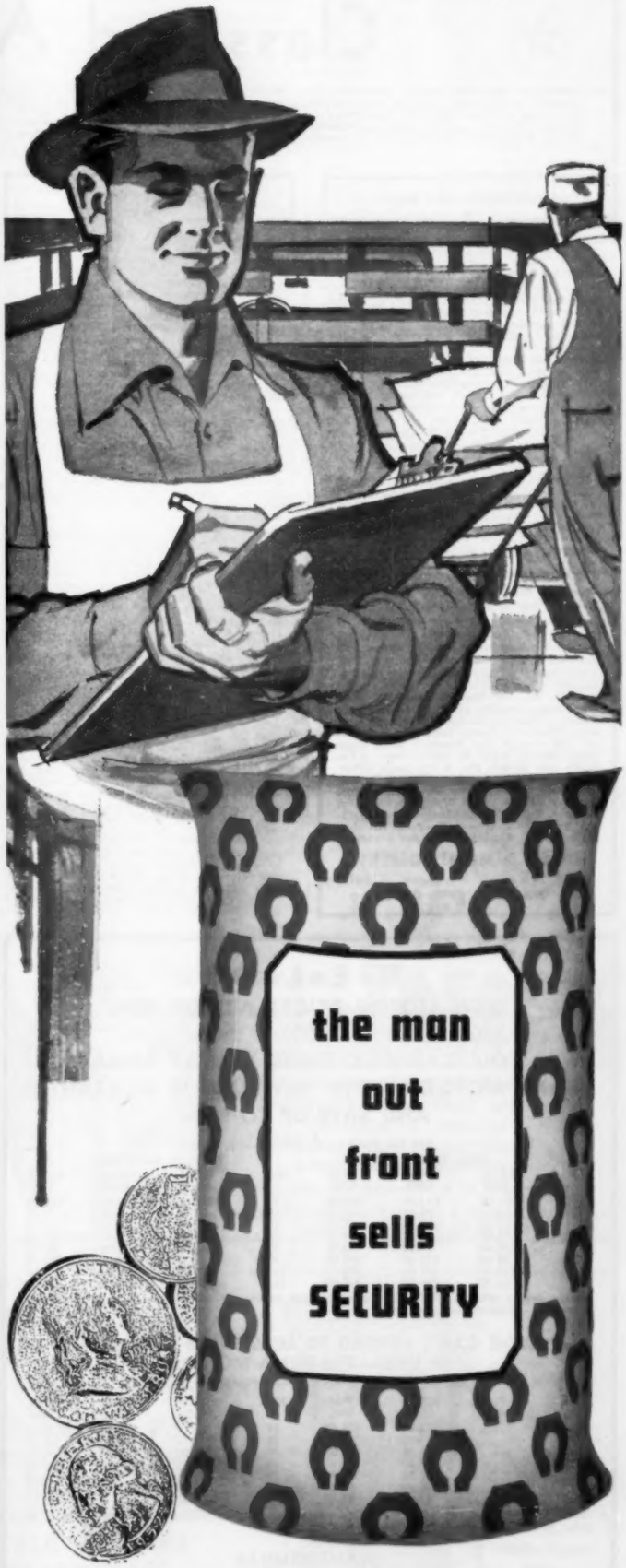

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2	64.00	67.00	75.00	2	70.00	86.00	98.00
3	74.00	75.00	89.00	3	101.00	104.00	125.00
5	85.00	89.00	112.00	5	112.00	125.00	159.00
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2	.....	27.00	34.00	25	.....	109.00	135.00
3	.....	34.00	39.00	30	$135.00	135.00	155.00
5	.....	39.00	.....	40	155.00	155.00	190.00
7½	.....	44.00	55.00	50	190.00	190.00	233.00
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Dry Skim Milk Use For Feed Declines

WASHINGTON—The October output of dry skim milk for animal feed equaled 1,000,000 lb., a decline of 7% from a year earlier and 8% from the 5-year average, according to the U.S. Department of Agriculture.

The combined production for the first 10 months of 1956 totaled 14,000,000 lb., 6% less than the corresponding period last year. Dry buttermilk production for October, at 3,700,000 lb., advanced 1% from a year earlier and 24% from the average. Cumulative production for January - October totaled 55,000,000 lb., 10% more than the same months of 1955.

Stocks of dry skim milk for animal feed held by manufacturers on Oct. 31 equaled 1,297,000 lb., 19% higher than a year earlier but 39% lower than the average. Selling prices of dry skim milk for animal feed in October averaged 9.91¢ lb., slightly above the preceding month but .2¢ below a year earlier.

FEED MILL COST CENTERS

Continued from page 14

He recommended using finely ground ingredients so that moisture will be absorbed at the conditioner and so that the pellet will not break into smaller pieces as easily as when coarse particles are present. High mineral levels, he continued, cause excessive machine wear and also slow production.

Fat Level

The higher the fat level, the softer the finished pellet, Mr. Williams pointed out. A level over 1½% will affect the hardness of the pellet. A thicker die will help in some cases to give a harder pellet because it restricts the flow. While trouble has been experienced with some feeds containing as low as 2% fat (probably due to both ingredients and presence of fat), adding 1½ or 2% fat can help production and help prevent plug-ups when a formula contains a high level of ingredients like milk products and minerals. Milk products may caramelize and get tacky when in a feed being pelleted and cause plug-ups, but Mr. Williams' firm has pelleted formulas containing as high as 80% milk products by using fat for the lubricating effect.

There may be trouble in making hard pellets when the molasses level goes over 4 to 6%, Mr. Williams said, but in some formulas a small amount of molasses helps by acting somewhat as a binder. Regarding moisture content, Mr. Williams said that the pellet operator prefers it to be low in the formula for this gives the opportunity to add more steam at the conditioner, which makes pelleting easier. Finished pellets or crumbles will normally be bagged off close to the original moisture content of the formula, which means in most cases that the moisture content of the formula should be kept close to the desired finished pellet moisture. If this is not done, there will be a material loss to the manufacturer.

Conditioning

Perhaps the most important operation in pelleting is the conditioning, where soft feed and dry steam are mixed together. "We like to use 50 to 150 lb. steam pressure and then reduce the steam pressure with a regulator to 30 lb.," Mr. Williams said. "By having a constant pressure, the control of steam through the steam throttle valve can be more accurate and the quality of the steam kept at a high level." A steam flow meter which records is a good investment since the operator can reset the machine according to past experience more quickly. There should be a good water separator in the steam line before the pellet machine.

As for dies, Mr. Williams pointed out, among other things, that a good magnet ahead of the pellet machine is valuable to remove foreign materials that damage dies. Also, dies should be refaced before becoming too badly worn. A mixture of oats and oil has been found good for breaking in a new die. Rolls also should be kept in good repair and well greased, but not overgreased. Mr. Williams' firm greases the rolls every eight hours, and the grease is measured at each greasing so that the roll is not overgreased. Rolls are taken out of production after each 200 hours for clean-up and inspection. On setting clearance between rolls and die, he said that "we feel that the proper setting is to set the roll close enough to the die so that the roller will turn with the die."

Discussing a vertical cooler, Mr. Williams said that it should hold ¼ in. or smaller pellets for at least eight minutes. He said a cooler is doing a good job when the discharge pellets are 8 to 12° above atmospheric temperature, and at the moisture that the soft feed was before sending it to the pellet machine.

In connection with crumblizing, Mr. Williams noted the importance of keeping corrugations on the roll sharp. The harder the pellet, the better the yield of crumbles, he continued. He likes a 3/16 in. pellet because it gives thorough cooling and is the most suitable to produce desired size for both large and small crumbles.

Packing

"The packaging floor is the heart of your mill," Raymond Routh, Quaker Oats Co., Memphis, told the production men. "It can hold up your entire operation."

In discussing this cost center, Mr. Routh divided the operation into three parts—(1) weighing, (2) bag filling, and (3) closing.

To determine what kind of scale is right for a particular operation, Mr. Routh suggested that feed men contact the manufacturers. "You can give the mill away on the packing floor," he emphasized.

Having a bin over the packer has several disadvantages; some types of feed can separate, and if the packer is too large for the bin, it has a poor psychological effect on the men packing.

In checking weight of bags, he recommended that four or five consecutive bags be checked to set the machine, then the weighing of one out of 25 bags.

"Scales need resetting when you change type of feed," he stated. Mr. Routh advised having a scale handy to the packer and one off the table in the warehouse to make spot checks.

In filling bags, he stressed the importance of putting automatic packers on automatic and leaving them there. "You will get a lot more feed packaged," he said, indicating that the men would keep up.

A bag shaker is important, according to Mr. Routh, because it enables use of smaller bags for some types of feed. A 1½ in. smaller bag can mean a $10 a day savings.

Coding Suggested

In connection with closing bags, Mr. Routh recommended the use of an automatic coding machine. This is important in keeping a fresh supply of feed in the warehouse. It also helps pinpoint shortweight bags, helping the manufacturer and the worker to correct the situation.

Different colored tags can be used to good advantage, especially if there are any illiterates in the plant, he said.

In sewing bags, Mr. Routh recommended the installation of automatic thread cutters.

General considerations mentioned by the speaker included the use of adequate suction to take away dust, making better working conditions and enabling greater accuracy, and repeated conferences with the packers to let them know management is vitally interested in their work.

Warehouse and Loading

Information on warehousing and loading was presented by J. D. Johnson, General Mills, Inc., Minneapolis. He concentrated on the way fork lift trucks are used in performing these operations since that system was assumed for the "model mills" in the cost study.

If a substantial percentage of sacked feed is loaded in boxcars, it is best to have the width of the pallet be 4 ft. to 4 ft. 3 in. The usual depth of the pallet is 3 to 4 ft.

"The warehousing of feed is as good as the pallet of feed," Mr. Johnson said. "If a good solid pallet is made with straight sides, the individual sacks will be stable and there will not be much tendency for them to fall down."

He described various jigs to use in stacking feed on pallets to assure that the pallet load is uniform in size and all sides straight. He also stressed the importance of having the top of the load level. The simplest type of jig consists of two sides at

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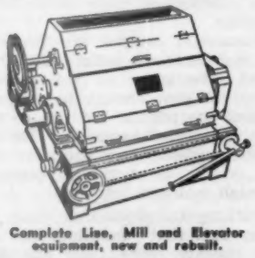
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right angles; the pallet is placed against the two sides and the sacks piled firmly against the jig. Another jig can be two sides with a back that slides up and down to allow removal by the lift truck. A third type consists of two of the three-sided jigs back-to-back mounted on a pivot, allowing one pallet to be filled while the other is being removed.

Warehousing

The take-it-or-leave-it type of pallet was that discussed in Mr. Johnson's presentation. In pallet stacking, he said, two-high has been found ideal. In laying out a warehouse, he said that 6 in. should be allowed between pallets on all sides. To assist the truck operator, lines should be painted or yellow adhesive dots used to spot the corner of the pallet location. Aisles should be 2 ft. wider than two widths of pallets.

In handling and storing bulk feeds, Mr. Johnson said, use of portable bins holding about 1 ton of feed and handled by a fork lift truck gives complete flexibilty, since as soon as the bin is empty it is ready for filling.

Adequate stock control is essential, Mr. Johnson advised, describing various systems for knowing which feed is where and which is to be loaded out when.

It is the supplier's responsibility to see that feed is delivered in perfect condition, and often it is necessary to paper and otherwise prepare cars and trucks for loading, Mr. Johnson pointed out. He went on to describe loading of palletized feed into cars and trucks. On a 4 ft. module, there will be exactly 20 spots in a car, making a minimum load of 20 tons with 1 ton per pallet.

The loading of bulk feed can be done direct from production, from stationary bins or from portable bins. When more than one kind of feed must be put in a boxcar, bulkheads are necessary. In any bulk loading, scale tickets should be provided to verify the loading.

Maintenance

Suggestions for reducing maintenance costs in feed mills were made by Lionel C. Ball, Cooperative G.L.F. Exchange, Inc., Buffalo. The use of more automatic equipment increases the need for proper maintenance, he said.

A preventive maintenance plan is basic to any program. The schedule used in GLF plants is set up on a form which lists each type of equipment, tells when it should be inspected, what should be inspected, and what care should be given. An oiling schedule is also used.

A work order form used in GLF mills serves four purposes, Mr. Ball said. It provides an easy way for supervisors to let the maintenance department know which equipment needs repairs; it helps the maintenance supervisor plan for his crew; it allows scheduling of work during plant hours instead of on overtime; it provides a record of work required on equipment, thus pinpointing weak places in equipment. "Six months after we put this work order procedure into effect, we had been able to cut our maintenance overtime about 60%," Mr. Ball said.

A weekly "equipment downtime report" has proved useful in showing which machines or parts need reinforcing or replacing. When breakdowns do occur, the amount of downtime can be reduced by having on hand complete replacement units, or even duplicate equipment, Mr. Ball suggested.

Maintenance Report

Another weekly report shows where maintenance labor is being utilized. "If it shows that we are spending a lot of our labor on new and replacement construction so that the normal preventive maintenance is being neglected, we will consider the use of outside contractors to handle the new and replacement jobs," the speaker stated.

Housekeeping is another important phase of plant maintenance, according to Mr. Ball. Building maintenance is also important, and periodic inspections and repairs should be made.

Electronic control panels and equipment should be installed so that dust is kept away from them. Fork lift trucks should be maintained like a car, Mr. Ball advised, with major repairs left to trained mechanics but the single inspections done by the operator.

NEWS TIME—These four men are catching up on some news in the latest edition of Feedstuffs between sessions at the Midwest Feed Production School in Kansas City. Seated are Wilford Farmer (left), Dawe's Laboratories, Inc., Peoria, Ill., and Edwin Poland, Dawe's, Chicago. In back are Francis Wilson, National Alfalfa Dehydrating & Milling Co., Henrietta, Mo., and Aubrey Martin, National Alfalfa, Lawrence, Kansas.

High-Molasses Feeds

The diligent following of the equipment manufacturer's recommendations in making high-molasses pellets was called for by Dr. W. E. Poley, Zip Feed Mills, Sioux Falls, S.D.

"Most of the mistakes are made when the pellet mill operator begins taking exception to operating rules," he said. Some of these rules are that the pellet mill should not be operated in excess of capacity, the temperature of the feed and molasses must not be too low, and even flow of dry feed and molasses must be maintained, the pellets must be properly cooled and dried.

Dr. Poley recommended that ingredients be finely ground—able to pass through a 1/16 in. screen—since that aids absorbency. Molasses should not be held at temperatures above 110° for more than short periods, although higher temperatures are all right at time of application. Dr. Poley also analyzed types of molasses and application of molasses at the mixer and at the pellet mill.

Metering

In metering of molasses, Dr. Poley suggested that temperature and inlet pressures should be standardized. Frequent checking of yields, protein and moisture analysis serve to keep one informed on accuracy of molasses application. He also recommended a brix reading on each shipment of molasses.

Horizontal coolers are necessary for high-molasses pellets, Dr. Poley noted. The speed of the conveyor should be slow enough to adequately cool the pellets, but not so slow that they shrink excessively. He cited figures showing how excessive cooling or drying decreases poundage through moisture loss.

Turning to production time, Dr. Poley said that "we tihnk one man can operate more than one high-molasses and two hard pellet mills." He described one operation with the use of two high-molasses pellet mills on one line. This would take a little over ¼ man-hour per ton, including sacking and piling.

ANNOUNCE NEW ARRANGEMENT—The signing of an exclusive contract for Agri-Tech, Inc., Kansas City, to represent Strong-Scott Manufacturing Co., Minneapolis, was announced last week at the Midwest Feed Production School in Kansas City. The new contract covers the six-state area of Arkansas, Missouri, Oklahoma, Colorado, Kansas and Nebraska. Meeting to announce the agreement, from left to right, were: O. K. Fredrikson, Strong-Scott contractor sales manager; Loren V. Burns, Agri-Tech technical director; J. Thomas Haigh, Strong-Scott director of marketing; Dean Scholes, Agri-Tech vice president, and Robert W. Fredrikson, Strong-Scott field sales manager.

NORTH CAROLINA CONFERENCE

(Continued from page 8)

viewed with apprehension, Dr. Wilcke reported, "but feeders now demand that the service of mixing drugs in manufactured feed be provided by feed manufacturers."

"Today," he added, "preventive medication via the feed route is a well accepted practice, and it is used quite commonly to provide some measure of protection for the feeder, and to help safeguard the investment in adequate nutrition."

Continuing, he noted that coccidiostats are used very widely in broiler production. Antibiotics are used at low levels to increase rate of growth. They are commonly used in rations for swine, turkeys, broilers, pheasants, calves and some other species, and they are used at higher levels to help protect the animal against so-called subclinical levels of disease. In addition, antibiotics are frequently used in feeds as treatments for specific diseases.

Arsenicals, he continued, are used to stimulate rate of growth in poultry and to stimulate rate of growth and suppress scours in young pigs. An estrogenic hormone is used to increase rate of gain and improve feed efficiency in fattening cattle. Another estrogenic hormone is used to improve the finish in market poultry.

Other products are used as preventives of blackhead in turkeys, and certain nitrofurans are used either as preventives against salmonellosis or as treatments for that same class of infections.

A wide variety of products has been introducted to help livestock and poultry make efficient use of the feeds that are supplied to them.

"Since extremely small proportions of the drug are required for this purpose," Dr. Wilcke warned, "accurate mixing is extremely important. The feed manufacturer must furnish accurate diagnosis by well-trained, competent diagnosticians before treatment is instituted."

Dr. Wilcke concluded: "Medicated feeds are a very valuable tool in economical livestock and poultry production, but they carry with them a mandate for accurate formulation, precision mixing, and careful usage."

At noon, the manufacturers attending the conference were guests of the N.C. Feed Manufacturers Allied Assn. for luncheon.

Following the luncheon, Dr. J. W. Pou, head of the N.C. State College department of animal industry, took over the chairmanship.

Those included on the afternoon program were Dr. Thomas, Dr. Hanson and Dr. Mix.

Dr. Thomas reported on recent developments in ruminant nutrition.

He divided current research into three general areas: (1) Methods of increasing bacterial fermentation by providing specific nutrients or stimulants and by furnishing the required nutrients at an optimum time and ratio. (2) Studies to evaluate possible differences in metabolism between ruminants and simple-stomached animals; reference is made to the possibility that fatty acids are the required source of energy for ruminants. (3) Laboratory methods that will adequately duplicate microbial processes in the rumen; the fact that lack of numbers hinders the speed of advance in large animal research has stimulated the use of "artificial" rumens.

According to Dr. Thomas, rumen bacteria require energy, nitrogen, calcium, phosphorus, sodium, potassium, magnesium, iron, sulfate, chlorine and carbonate when grown in the artificial rumen. Cobalt is also needed for vitamin B_{12} synthesis.

Workers at N.C. State and elsewhere, Dr. Thomas commented, are attempting to duplicate rumen conditions in the laboratory. The problems of maintaining anaerobic conditions, providing for adequate mixing and removing end products are most critical. The amount of cellulose digested by rumen bacteria is most generally the criterion used to evaluate the success of an artificial rumen.

Concluding, Dr. Thomas said that an understanding of the nutritional requirements of bacteria helps explain apparent superiority of certain rations but does not minimize the importance of feeding cattle and sheep a ration which is potentially a good source of energy, protein, minerals, vitamin A and probably vitamin D.

Sows and Gilts

In his report on feeding bred sows and gilts, Dr. Hanson pointed out that there is quite a bit of agreement that bred sows and gilts do not need so much feed as many are fed.

Dr. Hanson cited results of experiments with restricted hand feeding, restricted energy intake with corn cobs, use of alfalfa to restrict energy intake and use of salt and steamed bone meal to regulate feed intake. He also mentioned work indicating that silage may have a place in feeding breeding animals.

In certain work, it was noted, survival rate of pigs was highest in groups of gilts getting restricted energy intake. Average birth weight of pigs was slightly less for the restricted gilts. Feed costs per weaned pig were lower in the restricted group. Dr. Hanson also mentioned that smaller, lighter gilts (fed cobs) handle themselves better in the farrowing pen that their "better-fed" sisters.

Dr. Hanson indicated that the method used to restrict energy intake depends on prevailing circumstances. But, he said, there are ample data to show that less energy should be fed to the breeding herd than is frequently the case.

Feeding Dairy Cows

The final address for the opening day was given by Dr. Mix. He discussed liberal versus restricted grain feeding to dairy cows.

Summarizing his report, he stated that there is no one level of grain feeding which is most profitable under all conditions.

"The price of milk, grain and roughage, the quality and quantity of roughage fed and the inherited ability of the cow to produce," he said, "all must be considered in making recommendations on grain feeding."

Secondly, he said that, with limited roughage intake (18 lb. per 1,000 lb. live weight), $6 per 100 lb. of 4% milk, $4 per 100 lb. of grain, it is most profitable to feed good cows approximately 1 lb. of grain for 2 lb. of milk.

Finally, with free access to good hay ($36 per ton) and with grain at $4 cwt. and milk at $6 cwt., it is most profitable to feed good cows 1 lb. of grain for each 2.75 lb. of milk.

The concluding day of the conference opened with D. E. Huntington, past president of the feed association, presiding.

Beef Cattle Nutrition

Dr. Barrick began the day with a talk on research on beef cattle nutrition at N.C. State College.

Much of the feeding work with beef cattle in North Carolina, he stated, is directed toward studies on means of best utilizing available roughages and pastures in the production of beef and of providing economical year-around feed supplies.

"Providing an economical source of feed during periods when pastures are not growing," he reported, "is one of the principal problems of the cattle producer. Roughage is the primary feed required for most classes of cattle during such periods, and the need for supplemental concentrates will be determined by the age and condition of the animals and quality of the roughage."

He added that a good response has been obtained from supplementing grass-legume silage with corn. Also, accumulated Ladino-clover fescue pasture has given good winter performance on weaned calves during years when the weather was not severe.

According to Dr. Barrick, the principal limitation of corn silage for wintering beef cattle is protein, but mixed protein supplements fortified with minerals have not given consistent or marked response above that obtained with straight oil meals and mineral free choice when fed with good corn silage.

Animal grease and salt have been studied as means of limiting the grain intake of grazing steers self-fed ground corn. Research results show that fat-fed animals gained slightly faster, graded slightly higher, and sold for enough more money to show a slight advantage for the use of fat.

Baby Pigs

Dr. Hanson returned to the speakers' platform to discuss the feeding of pigs to eight weeks of age.

"It appears," he related, "that the vitamin requirements of baby pigs (less than eight weeks of age) are very similar to those of somewhat older pigs. It seems to me that we should expect this if we are agreed that A requirements are related to body size and that B vitamins function in enzyme systems concerned with protein, fat and carbohydrate metabolism, and hence requirements are related to food intake."

One of the problems in early weaning, Dr. Hanson pointed out, is to get the pigs to consume the dry starters in reasonable quantities the first week. His experiments with flavored and unflavored feed indicated that pigs preferred unflavored feed.

The use of high-milk prestarter, he added, increased eight-week weights significantly, but pigs not fed a prestarter gained more rapidly after they were eight weeks old and thus nullified the advantage.

Dr. Hanson concluded by saying that there are many reasons which favor early weaning of pigs, "but, in our experience, economy of production is not one of them."

Vitamin E, Antioxidants

The last speaker on the program was Dr. Singsen discussing the current status of vitamin E and antioxidants in poultry feeds.

"Vitamin E is a multi-functional vitamin," he began, "and specific symptoms of vitamin E deficiency differ greatly with species and conditions."

Continuing, he reported that the current interest of the feed and poultry industries is three-fold: (1) Young birds in which a vitamin E deficiency may lead to the development of nutritional encephalomalacia or exudative diathesis, (2) older growing chickens and turkeys where hock disorders or muscular dystrophy may cause trouble, and (3) adult chickens and turkeys in which vitamin E may have a marked influence on the fertility and hatchability obtained.

Briefly, Dr. Singsen stated that vitamin E has a definite place in breeder rations, where it may increase fertility and hatchability and improve the livability of the chicks produced.

Further, vitamin E improves the fertility and hatchability of turkey eggs and also assists in the prevention of an enlarged hock condition.

Antioxidants supplement the action of vitamin E, enhance the utilization of vitamin A and pro-vitamin A and enhance the utilization of the carotenoid pigments.

Dr. Singsen added that various forms of vitamin E differ in their biological potency, with D-alpha-tocopheryl acetate being the most stable and effective.

In conclusion, he stated that feed ingredients may have lost much of their vitamin E prior to being fed, and what remains may be less available to the chick than other forms of vitamin E.

Following each of the major addresses, the conference was thrown open for general discussion on each of the topics.

Officers Elected

In addition to the informational portion of the program, the conference was highlighted by the election of new officers for the N.C. Feed Manufacturers Assn.

Rex Edison of Gastonia was selected president, Louis Maxwell, Jr., of Goldsboro, vice president, and A. W. Koon of Spartanburg, S.C., secretary-treasurer.

The finale for the conference was the presentation of the newly elected officers by the outgoing president, W. D. Edwards.

Dr. T. D. Bell Moves

MOSCOW, IDAHO—Dr. T. Donald Bell, professor of animal husbandry at Kansas State College, Manhattan, has been named head of the department of animal husbandry at the University of Idaho, Moscow.

Dr. Bell, who has been on the Kansas staff since 1950, formerly was on the staffs of New Mexico A&M College, Texas A&M College and Utah State Agricultural College.

THE FEED MARKETS

★ ★ ★ ★

Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Seattle: Demand slow; trend steady; supply good; 300 D, 2,250 A 22¢ lb., 300 D, 1,500 A 19¢ lb., 300 D, 750 A 17¢ lb., all ex-warehouse, drums included.

Denver: Demand slow; trend stronger; 2,250 A, 350 D 22¢.

Minneapolis: 10,000 A 33¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 19½¢ lb.; 300 D, 750 A 17½¢ lb.

Boston: Demand fair; supply adequate; trend easier; 600 D, 1,500 A 18¢ lb.; 300 D, 2,250 A 20¢; 300 D, 1,500 A 17¢; 300 D, 750 A 15½¢.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 20@20½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Chicago: Demand fair; supply plentiful; straight A feeding oil, with 10,000 units vitamin A per gram 8@10¢ a million units of vitamin A, l.c.l., packed in 55 gal. drums, f.o.b. Chicago, drums included.

ALFALFA MEAL

Los Angeles: 15% suncured $43@44, demand fair, trend steady, supply ample; 17% dehydrated $56@57, demand scarce, supply nominal.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $72.15@73.65; 17% dehydrated, no A $64.15@65.65; 13% fine suncured $40@57.

Minneapolis: Market unchanged; quotations: 17% dehydrated, 100,000 units of vitamin A guaranteed $66.75@67.25, granules or oil treated $66.25, bulk; 18% dehydrated, 125,000 units of vitamin A guaranteed $70.25, granules or oil treated $69.25, bulk.

Portland: Demand good; trend firm; supply ample; 15% suncured, Idaho meal $45, delivered Portland; 15% suncured $45, f.o.b. California; dehydrated, California $54@58.

St. Louis: Demand fair; trend higher; supply adequate; dehydrated, 17%, 100,000 A $56 ton; suncured No. 1 fine ground, 13% $52 ton, f.o.b. St. Louis.

Memphis: Demand poor; supply limited; trend unchanged; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $69.75.

Philadelphia: Demand dull; supply fair; 17% dehydrated $75.

Kansas City: Demand good; trend steady to higher with some predictions that prices will be up $2.50 ton by Jan. 1; supply tight, with all but the blenders' supplies of dehydrated alfalfa virtually exhausted and much of the blenders booked; 17% protein dehydrated alfalfa meal with 100,000 units vitamin A guaranteed on arrival $61.50@62.50 Omaha, $62.50 Kansas City in sacks; 18% protein 125,000 units A $65.50 sacked; 100,000 A pellets $58.50 bulk, Kansas City; non-guaranteed A meal $53.50@54 sacked, Omaha, $55.50@56.50 Kansas City; suncured: fair demand, adequate supplies, f.o.b. 1 fine ground $44.50@47.50 sacked, Kansas City; No. 1 ¼-in. $42@42.50, No. 2 ¼-in. $39.50@40.50 sacked, Kansas City.

Chicago: Demand slow; supply tight; 17% dehydrated, with 100,000 units vitamin A guaranteed $67@67.50; 17% with no A guaranteed $60; 13% suncured $51@51.50.

Boston: Demand good; supply fair; dehydrated 17% $73; suncured 13% $55.90, nominal.

Buffalo: Demand and supply fair; trend steady; $76, sacked, Boston.

Ft. Worth: Demand good; supply limited; California origin dehydrated meal or pellets, truck $67, delivered Ft. Worth; suncured: South Dakota No. 1 13% protein, ¼ in. grind, rail shipment $52, prompt; Colorado No. 1 $52; California 15% pellets $59, delivered Ft. Worth, truck.

Seattle: Demand slow; trend steady; supply good; 15% protein suncured $44 ton, delivered, carlots; 136,000 A unit dehydrated $65 ton, delivered, carlots.

Denver: Demand slow; trend steady; supply ample; 100,000 A, 17% $60.

Omaha: Demand stronger; supply ample; 17% dehydrated, 100,000 A, papers or burlap $62.50.

New Orleans: Demand fair; trend steady; supply limited; 17% dehydrated, vitamin A guaranteed $72@72.50; pellets $70@71; non-guaranteed $65@66; 15% $62@63.

ALFALFA PELLETS

Omaha: Demand stronger; supply ample; 17% dehydrated, 100,000 A, bulk $58, sacked papers $63, sacked burlaps $62.

Denver: Demand slow; trend steady; supply ample; 100,000 A, 17% $63.

ANIMAL FATS (STABILIZED)

Ft. Worth: Demand good; supply sufficient; prime tallow, tank cars 7¾¢ lb.; drums 9¼¢, f.o.b. north Texas packing plants, with returnable drums.

St. Paul: Export demand has fallen off, and prices are easier. Quotations: bleachable fancy tallow 7¾¢ lb., f.o.b. producers' plants.

Kansas City: Demand good; trend weaker; supply ample; prime tallow 7¼@7¾¢ lb.; bleachable fancy yellow 7¾@7¾¢ lb.

Louisville: Demand fair; trend easy; supply good; bleachable white 7¾¢ lb.; white 7¾¢ lb.; yellow 6¼¢ lb.

Chicago: Demand and supply fair; bleachable fancy tallow, tank truck or carlots 7¼@7¾¢ lb.; yellow grease 6¼¢.

Denver: Demand fair; trend off slightly; supply adequate; prime tallow 7¼¢.

Los Angeles: Demand good; trend firm; supply ample; bleachable fancy tallow 7½¢; yellow grease 6½¢.

BARLEY FEED

Philadelphia: Demand dull; supply fair; pulverized $52.

Seattle: Demand fair; trend firm; supply good; whole barley $60 ton, ground barley $60 ton, rolled barley $61 ton, ex-warehouse, l.c.l., sacked.

Boston: Demand slow; supply light; pulverized $52.75.

Milwaukee: Demand fair; supply good; needles $1.06@1.16; ground $32, sacked, Milwaukee.

Chicago: Demand good; supply light; $45.

Baltimore: Demand good; supply light; $54.50.

New Orleans: Demand slow; trend easier; supply adequate; $52@54 on pulverized.

Ogden: Supply normal; rolled $55@60; whole barley $48@53.

Los Angeles: Demand fair; trend steady; supply ample; standard rolled $3.42; standard ground $3.38.

Portland: Demand good; supply ample; trend unchanged; rolled $63, ground $61.

BENTONITE (SODIUM)

Chicago: Demand very good; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $15.50; fine granular, 80-100 mesh $12.75; powder, 200 mesh $12.50; f.o.b. Belle Fourche, S. D., minimum 30 ton carlot: 80 granular $12.50 net, 200 mesh fine $12.25 net.

BLOOD FLOUR

Louisville: Demand slow; trend steady; supply normal; $80@85 ton.

BLOOD MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $115.

Ogden: Supply average; $97.50 ton in 100 lb. bags, f.o.b. Ogden.

Louisville: Demand slow; trend steady; supply normal; $80@85 ton.

Chicago: Demand fair; supply adequate; $100@120 ton, guaranteed 80% protein.

Los Angeles: Demand good; trend steady; supply ample; $4.75 a unit of ammonia.

Portland: Demand good; supply ample; trend unchanged; $95.

Seattle: Demand slow; trend easy; supply good; $80 ton, ex-warehouse, truck lots.

New Orleans: Demand fair; trend steady to firm; supply adequate; $97.50@100.

BONE MEAL (STEAMED)

New Orleans: Demand fair; trend steady; supply ample; $85@89.50.

Los Angeles: Demand fair; trend steady; supply ample; $89.50, domestic.

Cincinnati: Demand fair; trend steady; supply adequate; $80 ton, sacked, f.o.b. Cincinnati.

Chicago: Demand slow; supply adequate; $65@85.

Louisville: Demand slow; trend steady; supply normal; $70@75 ton.

Boston: Demand and supply steady; $85.

Buffalo: Demand good; trend steady; supply ample; $85 ton, sacked.

Portland: Demand slow; supply ample; trend unchanged; $90 import.

Omaha: Demand slow; supply ample; $80.

Seattle: Demand and trend steady; supply good; $85 ton, ex-dock, truck lots.

St. Louis: Demand good; trend steady; supply adequate; $90@95 ton, sacked.

Denver: Demand fair; trend unchanged; supply ample; $77.50, f.o.b. West Coast.

Ft. Worth: Demand fair; supply adequate; $85, sacked, f.o.b. Ft. Worth, local manufacture.

BREWERS DRIED GRAINS

New Orleans: Demand good; trend higher; supply adequate; 26% $53@57.50.

St. Louis: Demand good; trend steady; supply ample; $48 ton bulk, $53 ton sacked.

Philadelphia: Demand slow; supply fair to light; $67.50.

Chicago: Demand slow; supply light; 26% $56.50@57.

Louisville: Demand good; trend steady; supply normal; $56 ton.

Buffalo: Demand and supply fair; trend steady to higher; $58.50, bulk, Boston.

Boston: Demand active; supply tight; 26% $58.25 in bulk.

Milwaukee: Demand good; supply fair; $57.

Ft. Worth: Demand slow; offerings scarce; 26% $65@66, delivered, Ft. Worth, December.

Cincinnati: Demand poor; trend steady; supply adequate; $63@64.

Los Angeles: Demand fair; trend steady; supply ample; f.o.b. Van Nuys, $59 sacked, $52 bulk.

BREWERS DRIED YEAST

Los Angeles: Demand good; trend steady; supply limited; 9¢, 5 tons or over.

Portland: Demand slow; supply ample; trend unchanged; 13½¢.

Chicago: Demand good; supply limited; 10@11½¢ lb., in carlots; 10¼@12½¢, l.c.l.

Boston: Demand and supply steady; 11¢ lb.

Buffalo: Demand good; trend steady; supply limited; $10.75 cwt.

Louisville: Demand slow; trend steady; supply normal; 10¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11⅛¢.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11⅛¢.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11⅛¢.

New York: Carlots 9⅛¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10⅛¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

St. Louis: Demand fair; supply adequate; 10¢ lb. in carlots; 10⅛¢ lb. in 5-ton lots; 11¢ lb. in ton lots; 11⅛@12¢ lb. in less than ton lots.

Denver: Demand fair; trend unchanged; supply ample; $11 cwt.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¼@12½¢, l.c.l.

Milwaukee: Demand good; supply limited; 10½@11½¢ lb., in carlots; 10⅜@12½¢, l.c.l.

Omaha: Demand and supply good; 11¢ lb.

BUTTERMILK-CONDENSED

Philadelphia: Demand moderate; supply fair; $4.25, barrels.

New Orleans: Demand fair; trend steady; supply adequate; $4.25@4.75, 100 lb. drums.

Portland: Demand slow; supply ample; trend unchanged; $4.75.

Los Angeles: Demand fair; trend steady; supply ample; 100 lb. drums $5.50; large barrels $4.75.

Ogden: Supply average; $4.90, 100 lb. drum.

Louisville: Demand slow; trend steady; supply ample; $4.75 cwt.

Chicago: Demand fair; supply adequate; $3.25@3.50 cwt. in carlots.

Boston: Demand fair; supply light; $3.75 in 100-lb. sacks.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $13.97, flour $9.72.
Buffalo: Crystals $14.74, flour $10.47.
Toledo: Crystals $16.39, flour $12.14.
Boston: Crystals $15.18, flour $10.93.
Limecrest, N.J.: Crystals $9.75, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9.

Minneapolis: Plain $11; iodized (⅛ lb. KI per ton) $14.45; iodized manganesed $15.90, in 100-lb. bags.

Chicago: Plain $8.90 ton in 100-lb. bags, delivered.

Los Angeles: Demand fair; trend steady; supply ample; meal and flour $10.53 ton, carloads; grits $13.03 ton, carloads.

Seattle: Demand and trend steady; supply good; $14 ton, ex-warehouse, truck lots.

CHARCOAL

Boston: Demand and supply light; $95, nominal.

Chicago: Demand quiet; supply limited; poultry charcoal $102 ton in 50-lb. multiwalls.

Los Angeles: Demand quiet; supply limited; trend steady; poultry charcoal, oak, 40-lb. bags $176 in ton lots.

COCONUT MEAL

Seattle: Demand slow; trend steady; supply limited; $72 ton, ex-dock, 30-day shipment from Philippines.

Portland: Demand slow; supply limited; trend unchanged; $72.

Los Angeles: Demand limited; trend steady; supply adequate; cake, ex-dock, offshore, December $71@72.50.

COD LIVER OIL (FORTIFIED)

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 16½@19¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 18@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

Boston: Demand cautious; trend easier; supply plentiful; 600 D, 2,250 A 22¢ lb.; 300 D, 2,250 A 21¢; 300 D, 1,500 A 18½¢.

CONDENSED FISH SOLUBLES

Los Angeles: Demand good; trend steady; supply limited; 4¢.

New Orleans: Demand good; trend steady; supply scarce; menhaden, 50% $80@82.50.

Boston: Demand good; supply tight; 4¢ lb.

New York: Demand good; trend steady; supply limited; 4½¢ lb., f.o.b. eastern shore.

CORN GERM MEAL

St. Louis: Demand good; trend firm; supply adequate; $47 ton bulk, $52 ton in burlap sacks, St. Louis.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $53.08, meal $71.08.
Atlanta: Feed $62.69, meal $80.49.
Birmingham: Feed $60.74, meal $78.74.
Boston: Feed $59.61, meal $77.60.
Chicago: Feed $49, meal $67.
Cleveland: Feed $56.31, meal $74.31.
Denver: Feed $58.37, meal $76.37.
Ft. Worth: Feed $56.93, meal $74.93.
Indianapolis: Feed $53.74, meal $71.74.
Kansas City: Feed $49, meal $67.
Louisville: Feed $53.30, meal $71.39.
New Orleans: Feed $58.27, meal $76.27.
New York: Feed $59.20, meal $77.20.
Norfolk: Feed $58.37, meal $76.37.
Philadelphia: Feed $58.78, meal $76.78.
Pittsburgh: Feed $56.93, meal $74.73.
St. Louis: Feed $49, meal $67.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $57.10@58.10.

Louisville: Demand slow; trend firm; supply normal; $57.10 ton.

COTTONSEED OIL MEAL

Los Angeles: Demand improved; trend firm; small offerings $64, local.

Cincinnati: Demand poor; trend steady; supply fair; solvent $68; old process $69.50.

Ogden: Supply normal; 41% $68@73.

Portland: Demand slow; supply ample; trend unchanged; $64, f.o.b. Los Angeles.

Denver: Demand fair; supply ample; trend unchanged; $69@70.

Omaha: Demand good; supply adequate; 41% solvent $73, pellets $76.

New Orleans: Demand slow; trend easier; supply sufficient; 41% old process $77@77.50.

Seattle: Demand fair; trend easy; supply good; $75 ton, delivered truck lots, 41% expeller process.

Memphis: Demand fair to good; trend steady; supply ample; prime 41% protein, old process $58, sacked; new process 41% solvent $57, sacked.

Wichita: Demand slow; supply sufficient; 41% old process $67, solvent $66@67.

Philadelphia: Demand dull; supply fair; $73.50.

Ft. Worth: Demand good; offerings of immediate shipment light; carlots, 41% old process $62, f.o.b. central Texas mills; solvent 41% low gossypol $64.50@65.50, delivered Ft. Worth; pellets $2 additional; cottonseed hulls $33@34, delivered Ft. Worth.

Atlanta: Demand fair; trend steady; supply ample; 41% $62, sacked, immediate.

Chicago: Demand slow; supply plentiful; hydraulic $68.50@69; solvent $68@68.50.

Louisville: Demand fair; trend firm; supply ample; old process $66.75 ton; new process not quoted.

Kansas City: Demand slow; trend weaker, especially forward; supply adequate; $58@58.50 old process, sacked, Memphis, nearby, 50¢ weaker for forward bookings; $56.50@57 for solvent, sacked, Memphis; $1 weaker for February-March bookings.

Boston: Demand slow; supply good; $74.75.

Buffalo: Demand poor; trend steady; supply fair; $75.50, sacked, Boston.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb., 15¢ lb.; ton lots and less 17¢; 12,000,000 units per lb., 5 tons to a carload 23¢ lb.; ton lots and less 30¢ lb.

D ACTIVATED ANIMAL STEROL, POWDERED

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢; 3,000 ICU 18¢, warehouse.

Kansas City: Demand and supply normal; trend steady; 10½@11¢ lb.

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums; 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: $49.50.
Houston: 19% $69.50.
Wales, Tenn.: $64.10.
Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17% $58 net ton, f.o.b. Coronet in 100-lb. multiwall bags, $55 in bulk.

DICALCIUM PHOSPHATE

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $89.06 ton, delivered; $3 ton less in bulk.

Trenton, Mich.: Minimum phosphorus 21%, maximum fluorine .01% guaranteed $90.30, f.o.b. Trenton, in 100-lb. multiwall bags; minimum phosphorus 18½%, maximum fluorine .01% guaranteed $79.55, f.o.b. Trenton in 100-lb. multiwall bags.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $79.55 ton, f.o.b. Columbia, in 100-lb. multiwall bags. Freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Chicago: Demand fair; supplies adequate; stock food grade, 18.5% phosphorus, 20,000 lb. or more $79.55 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn., less than 20,000 lb. $89.55; 21% phosphorus, 20,000 lb. or more $90.30, basis Chicago Heights and Nashville, less than 20,000 lb. $100.30; freight equalized with St. Louis, Trenton, Mich., and Godwin, Tenn.; bulk boxcars or hoppers, $3 net ton less than bagged material.

Bonnie, Fla.: Demand improving; supply adequate; minimum phosphorus 18½%, granular $79.55; freight equalized with closest dicalcium phosphorus producing point, carload basis.

Cincinnati: 18% phosphorus $88@89.

Portland: Demand slow; supply ample; trend unchanged; $100.

DISTILLERS DRIED GRAINS

Cincinnati: Demand poor; trend steady; supply somewhat limited; $60@65.

Philadelphia: Demand fair; supply very light; $69.

Boston: Demand active; supply tight; light $69.75, dark $70.50.

Buffalo: Demand and supply fair; trend steady; $64.50, bulk, Boston.

Louisville: Demand good; trend steady; supply fair; January, 1957, prices: bourbon grains, light $58.50, dark $60.50, solubles $80.

DRIED BEET PULP

New Orleans: Demand fair; trend steady; supply adequate; $56@60, December shipment.

Atlanta: Demand slow; trend steady; supply limited; $71.35, sacked, immediate.

Boston: Demand slow; supply adequate; $66.

Milwaukee: Demand and supply fair; molasses $57, plain $57.

Buffalo: Demand poor; trend steady; supply fair; $66, sacked, Boston.

Seattle: Demand fair; trend steady; supply good; $52 ton, delivered, carlots.

Ft. Worth: Demand slow; supply moderate; carlots, 50 lb. papers $65@66, delivered Ft. Worth, December.

Los Angeles: Demand good; trend firm; supply limited; $67.50@68.50 in paper bags.

Cincinnati: Demand fair; trend steady; supply adequate; $60@62.

Ogden: Supply average; $45@50 ton.

DRIED BUTTERMILK

Los Angeles: Demand fair; trend steady; supply ample; 11¢.

Ogden: Supply average; $7.25, 100 lb. bag.

Boston: Demand and supply fair; 11¢ lb.

Milwaukee: Demand fair; supply fair; $10.75.

Buffalo: Demand good; trend firmer; supply limited; $8.95 cwt.

Louisville: Demand fair; trend firm; supply normal; 9@9½¢ lb.

Chicago: Demand improving; supply light; medium acid $8.25@8.75, sweet cream $8.50@9 cwt., in carlots.

New Orleans: Demand slow; supply adequate; trend steady; $9.50@10 cwt.

Wichita: Demand slow; supply adequate; $8 cwt.

Ft. Worth: Demand very slow; supply light; local production $13 cwt., f.o.b. Ft. Worth.

DRIED CITRUS PULP

Los Angeles: Demand active for small offers; trend firm; supply scarce; f.o.b. southern California producers' plants: orange $50.50 sacked, $45.50 bulk.

Buffalo: Demand fair; trend steady to lower; supply adequate; $35, sacked, f.o.b. Florida points.

Boston: Demand spotty; supply adequate; $33.50, f.o.b. Florida points.

Atlanta: Demand fair; supplies ample; pulp $43, meal $38, sacked.

New Orleans: Demand fair; trend firm; supply sufficient; $38@41, Florida origin.

DRIED SKIM MILK

Philadelphia: Demand moderate; supply fair; $11.50.

New Orleans: Demand good; supply ample; trend steady; $12@12.50 cwt.

Portland: Demand good; supply ample; trend unchanged; 12½¢.

Los Angeles: Demand fair; trend steady; supply ample; $13.75.

Louisville: Demand fair; trend firm; supply ample; 11½@12¢ lb.

Chicago: Demand fair; supply adequate; $10.50@11 cwt. in carlots.

Milwaukee: Demand and supply fair; $11.75.

Boston: Demand good; supply fair; l.c.l. 12@12½¢ lb.

Buffalo: Demand good; trend steady; supply ample; $11 cwt.

Cincinnati: Demand fair; trend steady; supply adequate; 11@12¢.

Ogden: Supply average; $15.15, 100-lb. drum.

DRIED WHEY

Ogden: Supply average; $6.90, 100-lb. bag.

Los Angeles: Demand fair; trend steady; supply ample; plants $5.50; f.o.b. Los Angeles warehouses $6.10.

Cincinnati: Demand fair; trend steady; supply adequate; $5.25 cwt.

Portland: Demand good; supply ample; trend unchanged; $4.95.

Seattle: Demand slow; trend steady; supply good; $6.50 cwt., ex-warehouse, l.c.l.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6.25 cwt., sacked, delivered Ft. Worth or any Texas points or in ton lots, f.o.b. warehouse, Ft. Worth.

Philadelphia: Demand moderate; supply fair; $6 cwt.

New Orleans: Demand fair; trend steady; supply ample; $6.50@7 cwt.

Boston: Demand poor; supply plentiful; $5.85 cwt.

Kansas City: Demand and supply normal; trend steady; straight grade $6.25 cwt., delivered or $5.25, f.o.b. plant, plus freight, whichever is lower; partially delactosed $6.40.

Buffalo: Demand and supply fair; trend steady; $6 cwt., delivered.

Louisville: Demand slow; trend easy; supply ample; 6@6½¢ lb.

Chicago: Demand fair to good; supply light; $5.40@5.45 cwt. in carlots.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply adequate; $80, f.o.b. Maine; $88, f.o.b. Delaware.

FISH MEAL

New Orleans: Demand good; trend stronger; supply scarce; 60% menhaden $140@144 bulk; scrap $136@140.

Ft. Worth: Demand fair; supply dwindling; 63% South African pilchard with solubles $145; 68 to 73% Norwegian herring fullmeal with solubles $164.50; 65% Angola $144, f.o.b. Houston.

Seattle: Demand fair; trend steady; supply sufficient; $2 a unit protein, ex-dock, carlots—supply limited.

Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $171@173.

Boston: Demand good; supply fair; $140@142.

Milwaukee: Demand and supply fair; 60% $162.

Buffalo: Demand fair; trend higher; supply rather limited; 60% protein menhaden $150 ton bulk, $155 sacked.

Chicago: Demand fair to good; supply limited; eastern menhaden fish meal, 60% protein $140@143; western blended, 60% protein $129@130; Gulf, no offerings; Northwest herring-salmon blend $129@130; Canadian herring, 73% protein $2.05@2.08 a unit of protein, all f.o.b. producing points; 60% blended $152, delivered Midwest points.

Louisville: Demand slow; trend firm; supply ample; $150 ton.

Cincinnati: Demand fair; trend steady; supply fair; $150@160.

Los Angeles: Demand ready; trend firm; supply tight; $2.20@2.25 a unit of protein.

Portland: Demand slow; supply ample; trend unchanged; $2, f.o.b. Vancouver, B.C.; $2.10, f.o.b. California.

Atlanta: Demand fair; trend steady; supply ample; 60% $152, sacked, immediate.

HAY

Ogden: Supply normal; $1.10 bale; $21@24 ton in the barn.

Portland: Demand good; supply ample; tread unchanged; $35.

Los Angeles: Demand limited; trend steady; light offers; U.S. No. 1 $31@33; U.S. No. 2, leafy $28@30; U.S. No. 2, green $27@28; U.S. No. 3 $25@26.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 timothy hay $22.50; No. 1 red clover $24; No. 1 second cutting green alfalfa $26; No. 1 red clover mixed $26; wheat or oats straw $22.

New Orleans: Demand slow; trend higher; supply adequate to plentiful; baled alfalfa No. 1 $66@68; timothy and clover mixed $64@66; Kansas prairie $50@52.

Wichita: Demand slow; supply very light; prairie $30, alfalfa $37.50@40.

Seattle: Demand slow; trend steady; supply good; $35 ton, delivered, truck lots, U.S. No. 2 green.

Louisville: Demand dull; trend steady; supply heavy; alfalfa, No. 1 $30 ton, No. 2 $28; mixed timothy and clover, timothy or clover, No. 1 $25, No. 2 $23; straw, any variety $20@22 ton.

Boston: Demand and supply steady; No. 2 timothy $36@38.

Denver: Demand slow; trend steady; supply ample; baled alfalfa $34@36; baled mountain $38@40.

St. Louis: Demand fair; trend steady; supply ample; alfalfa, first and second cutting $18@20 ton; alfalfa, third and fourth cutting $22@24 ton; prairie (Kansas) $38@39 ton; timothy and clover mixed (Missouri and Illinois) $26@28 ton; wheat straw $16@17 ton; delivered St. Louis.

Ft. Worth: Demand fair; offerings light; carlots, baled, No. 1 alfalfa $44@47, No. 2 $42@45; prairie No. 2 $39.50@41.50, delivered TCP on 50% drouth freight rate.

Philadelphia: Demand and supply fair; $28@29.

HOMINY FEED

Kansas City: Demand good; trend steady to weaker; supply ample, with one source putting large quantity into the market causing price variations; $48@51, sacked, Kansas City, for either yellow or white; $3.50 less for bulk.

Seattle: Demand slow; trend steady; supply good; $62 ton, delivered, sacked, carlots.

Milwaukee: Demand good; supply fair; $51.50, sacked, Milwaukee.

Boston: Demand fair; supply adequate; $54.50.

Buffalo: Demand fair; trend steady to lower; supply good; $54, bulk, Boston.

Chicago: Demand fair; supply adequate; $48@48.50.

Louisville: Demand fair; trend steady; supply ample; $53.20.

Memphis: Demand nil; trend little lower; supply ample; white $54, yellow $54.

New Orleans: Demand fair; trend steady; supply adequate; $60.50@62.50.

Cincinnati: Demand fair; trend steady; supply adequate; $50.90@52.

LINSEED OIL MEAL

Los Angeles: Demand good; trend stronger; no production, light offers; $73@74, resale.

Portland: Demand good; trend higher; supply scarce; $72, f.o.b. Los Angeles.

Cincinnati: Demand fair; trend steady; supply adequate; new process $66.50@68; old process $76.50@78.

Ft. Worth: Demand slow; supply adequate; carlots, 34% or better: December $74.55, January-February $75.05, delivered Ft. Worth; pellets $2.50 premium.

Seattle: Demand fair; trend steady; supply sufficient; $82 ton, delivered, carlots, 34% protein.

Minneapolis: Prices have firmed after a low point of around $49.50 was reached earlier in the period, and quotations now range $51@52, bulk, Minneapolis, for 34% meal.

Chicago: Demand fair; supply adequate; solvent $61.50@62; expeller $71.50.

Louisville: Demand fair; trend easy; supply normal; old process $77.60; new process $68.10.

Boston: Demand slow; supply light; 32% $77.67 in bulk.

Kansas City: Demand slow; trend steady to weaker; liberal supply for nearby, not so much forward; $50.50@51.50, bulk, Minneapolis, for nearby; $51@51.50 for December forward.

Milwaukee: Demand good; supply fair; old process $71.25; new process $61.25.

Omaha: Demand good; supply adequate; 32% expeller $75.50, pellets $78; 36% solvent $66, pellets $68.50.

Philadelphia: Demand and supply fair; $73.

Denver: Demand fair; trend slightly down; supply ample; $74.

Wichita: Demand slow; supply sufficient; 34% $69.

New Orleans: Demand slow; trend stronger; supply ample; 32% or better $75@77.

MALT SPROUTS

Cincinnati: Demand fair; trend steady; supply somewhat limited; No. 1 $54.50@56.

Milwaukee: Demand good; supply fair; oddweights $48.50, evenweights $51.

Chicago: Demand slow; supply adequate; No. 1 $47.50@48.

St. Louis: Demand good; trend steady; supply adequate; No. 1 bulk $43 ton, No. 1 sacked $48 ton, No. 2 bulk $41 ton.

New Orleans: Demand slow; supply adequate; trend steady; No. 1 $47.50@48.

MEAT SCRAPS

St. Louis: Demand fair; trend steady; supply ample; 50% $71@72 ton bulk, $76@78 ton in paper sacks, $75@77 ton in burlap sacks.

Omaha: Demand slow; supply ample; $75.

New Orleans: Demand fair; trend steady to easier; supply adequate; 50% meat and bone $78@80.

St. Paul: Market easier at $73@74 for 50% meat and bone scraps.

Wichita: Demand fair; supply ample; 50% $77.50, f.o.b. plant; 55%, no quotations, no offerings.

Chicago: Demand and supply fair; 50% protein $65@75; 55% $85.

New York: Demand fair; trend steady; supply good; 50% $70, 55% $75, bulk; 50% $73, 55% $78, sacked.

Louisville: Demand slow; trend steady; supply normal; $70@75 ton.

Kansas City: Demand fair; trend weaker; supply ample; 50% meat and bone scrap $67.50@68 sacked.

Boston: Demand cautious; supply plentiful; $1.05 a protein unit; converted 50% $66.

Buffalo: Demand fair; trend steady; 50% meat scraps $65 ton, bulk, $70, sacked.

Seattle: Demand slow; trend steady; supply good; $75 ton, ex-warehouse, carlots, 50% protein.

Ft. Worth: Demand fair; supply ample; meat and bone, 50% $66@68, f.o.b. or delivered Ft. Worth.

Portland: Demand good; trend higher; supply ample; $1.55@1.60 a unit.

Los Angeles: Demand good; trend steady; moderate offers; $1.60@1.65 a unit of protein.

Cincinnati: Demand fair; trend steady; supply adequate; 50% $59.50 ton, sacked, f.o.b. Cincinnati.

Denver: Demand slow; trend steady; supply plentiful; 50% $60@62.50.

Ogden: Supply normal; $62.50 ton in 100-lb. bags.

MILLET

St. Louis: Demand fair; trend firm; supply scarce; recleaned Early Fortune $4.40 cwt., sacked; recleaned White Proso $4.50 cwt., sacked.

MILLFEED

Minneapolis: Demand is holding even with supplies, and the market is holding steady. Quotations: bran $44, standard midds. $44, flour midds. $47, red dog $49.

Kansas City: Demand good; trend steady; supply tight for nearby on bulk feeds; quotations Dec. 12: bran $41@41.75, shorts $41.25@42.25, sacked, Kansas City; bran $39.50, middlings $39.25@39.75, shorts $40.50, bulk.

Omaha: Demand good; supply adequate; bran $42; shorts $42.50; standard midds., bulk $41.50.

Wichita: Demand fair; supply sufficient; basis Kansas City Dec. 11: bran $41.25@41.75, shorts $41.75@42.25; bran declined 25¢ ton and shorts advanced 25¢ ton, compared with the previous week.

Denver: Demand fair; trend steady; supply ample; bran $44.75, shorts $45.25, mill run $45.

Ft. Worth: Demand rather slow; offerings more liberal; carlots, burlaps, prompt, bran $48.50@49.50; gray shorts $48.50@49.50, delivered Texas common points; 50¢ higher on both bran and shorts compared with previous week.

Chicago: A quiet week was noted in millfeeds during the period ending Dec. 13. Trading for northwestern supplies moving into the Midwest went along at a fair pace, but supplies moved slowly from this area into the East. Quotations: bran $47.50@48, standard midds. $47, flour midds. $49@50, red dog $50@52.

St. Louis: Demand slow; supplies adequate; bran $45.75@46.25, shorts $46@46.50, St. Louis switching limits.

Cincinnati: Demand fair; trend steady;

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supply adequate; bran $51.25@52, middlings $51.25@52.

Louisville: Demand fair; trend steady; supply good; bran $50.75, mixed feed $51.25, middlings $54.25, shorts $50.75.

Buffalo: Sales continued spotty. Prices moved in a narrow range. Bran ended unchanged to 50¢ higher. Middlings regained an early $1 loss and ended unchanged. Heavy feeds were down $1. Quotations Dec. 12: bran $48.50@49.25, standard midds. $49@50, flour midds. $51@52, red dog $51@52.

New York: Demand and supply good; trend lower; bran $56@56.60, standard midds. $57@57.50.

Boston: Demand spotty; supply adequate; bran $55.50, middlings $56.

Philadelphia: Demand spotty; supply ample; bran $55, standard midds. $57, red dog $61.

Memphis: Demand poor; supply ample; trend unchanged; wheat bran $48.50, gray shorts $49; standard midds. $49.

Seattle: Demand fair; trend firm; supply tight; $45 ton, delivered common transit points, carlots.

Portland: Demand good; trend higher; supply ample; $46.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $45, middlings $50; to Denver: red bran and mill run $52, middlings $57; to California: red bran and mill run $52.50, middlings $57.50, f.o.b. San Francisco and Los Angeles.

Los Angeles: Mill run, Utah-Idaho billing, sacked $56@56, improved demand, light offers; red bran, delivered CCP., sacked $59@60, demand fair, trend nominal, small offers.

New Orleans: Demand fair; trend lower; supply limited; bran $50@51, shorts $50@51.

MINERAL FEED

Ogden: Supply normal; $106.50 ton in 50-lb. blocks; $96.50 ton, granular, 50-lb. bags.

Portland: Demand slow; supply ample; trend unchanged; $42.

Denver: Demand fair; trend unchanged; supply ample; 7.5% phenothiazine, 45-lb. block $4.50; 8.2% phosphorus, 50-lb. block $3.50; 7.5% phenothiazine, 8.2% phosphorus, 45-lb. block $5.25; 5% phosphorus, 50-lb. block $2.65.

Sioux City: 50-lb. mineral blocks, 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Seattle: Demand fair; trend steady; supply good; competitive brands $45 ton, ex-warehouse; high phosphorus mixtures $65 ton, ex-warehouse.

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $95, 100-lb. bags $90, f.o.b. plant.

Ft. Worth: Demand fair; supply ample; all-purpose granules $88, block $93, mineral phosphorus 6%, granules $104, block $109; cattle-sheep mineral 7% phosphorus, granules $97, block $102; hog mineral phosphorus 3½%, granules $87, phosphorus 2% $76 (all in 50-lb. paper bags).

MOLASSES

Seattle: Demand and trend steady; supply good; $35 ton, f.o.b. Seattle, tank car lots.

Atlanta: Citrus molasses—demand good; supply limited; trend strong; $25 ton, bulk, f.o.b. Florida producing points.

New York: Demand good; trend steady; supply limited; blackstrap 29¢ gal., tank cars, tank wagons, f.o.b. New York.

Louisville: Demand fair; trend steady; supply ample; 28¢ gal., tank car lots, f.o.b. Gulf ports.

Minneapolis: Market firm at 28½¢ gal., f.o.b. New Orleans.

Kansas City: Demand fair; trend steady to higher; supply adequate; 28¢ gal. for immediate or prompt, offerings reported at 28½¢ January, 28¾¢ February and 29¢ March.

Milwaukee: Demand and supply fair; blackstrap 24¢ gal., New Orleans.

Boston: Demand fair; supply ample; 29½¢ gal. in tank cars.

Denver: Demand slow; trend steady; supply ample; 28¢ gal., f.o.b. New Orleans.

New Orleans: Demand fair; trend steady to higher; supply ample; 28¢ gal. in tank cars; 600-lb. drums $16.29, customers' drums.

Memphis: Demand poor; trend slightly higher; supply limited; blackstrap 28¢ gal., tank car, f.o.b. New Orleans.

Ft. Worth: Demand good; supply very scarce; blackstrap 29¢ gal., f.o.b. Houston; delivered Ft. Worth trucks $57.29; seller's market price on date of shipment.

Cincinnati: Demand fair; trend steady; supply adequate; 28¢ gal., New Orleans.

Los Angeles: Demand good; trend steady; supply ample; $35, f.o.b. tank cars; $35.25, f.o.b. tank trucks, both Los Angeles harbor.

Buffalo: Demand good; trend steady to higher; supply poor; 29½¢ gal., f.o.b. Albany.

NIACIN

New York: Trend steady; $8 kilo, 50-kilo lots; $8.10 kilo, 10-kilo lots; $8.20 kilo, 5- and 2½-kilo lots; $8.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Minneapolis: Market about unchanged, with trade quiet. Quotations: feeding rolled oats $89@90, standard pulverized $49@51.50, feeding oatmeal $74.50@78, reground oat feed $21.

Los Angeles: Demand fair; trend steady; supply ample; white pulverized $71.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $25; pulverized white oats $51.50@53.50; rolled oats $96@96.50.

Chicago: Demand fair; supply adequate; reground oat feed $21; fine ground feeding oatmeal $80@81; feeding rolled oats $90@91.

Louisville: Demand fair; trend firmer; supply normal; reground $27.25 ton, rolled $95.75, feeding $86.25, crimped $76.25, pulverized $54.25.

Boston: Demand cautious; supply adequate; domestic white, pulverized $58@59.50; reground oat feed $21.

Portland: Demand good; supply ample; trend unchanged; rolled $66, ground $63, cleaned $67.

St. Louis: Demand good; trend higher; supply adequate; reground oat feed $23 in 100-lb. burlap sacks; pulverized white oats $49 ton, choice $51.

Seattle: Demand fair; trend steady; supply good; feed oats $67 ton, ground oats $68 ton, rolled oats $71 ton, all ex-warehouse, l.c.l.

New Orleans: Demand fair; trend steady to higher; supply adequate; steam crimped oats $75@80, pulverized white oats $57@59, mixed feed oats $56@58.

Philadelphia: Demand dull; supplies fair to light; pulverized white oats $55; Canadian oat feed $27.50, domestic $21 on low grade and $26 on fancy grade.

Ft. Worth: Demand fair; supply scarce for immediate delivery; oat millfeed $51.40, reground oat millfeed $32.40.

Memphis: Demand poor; supply limited; trend unchanged; 3½% protein, reground oat feed $28.

OYSTER SHELL

Cincinnati: Demand fair; trend steady; supply adequate; $21.75.

Los Angeles: Demand and trend steady; supply ample; local $18.25, eastern $25.

Portland: Demand slow; supply ample; trend unchanged; western $30, eastern $36; granite grits $26.50, crystal grits $26.50.

New Orleans: Demand fair; trend steady; supply adequate; $15@18 local.

Seattle: Demand fair; trend steady; supply good; eastern shell $32 ton, western shell $28 ton, both ex-warehouse.

Boston: Demand good; supply plentiful; $23.21 in paper.

Louisville: Demand good; trend firm; supply normal; in 80-lb. bags $21.34, in 50-lb. bags $21.54, in 25-lb. bags $21.84.

PEAT MOSS

Los Angeles: Demand and trend steady; supply ample; Canadian, 6.1 cu. ft. bales $3.45 in 300-bale lots, delivered California main line points.

Seattle: Demand slow; trend steady; supply good; $2.90 bale, delivered, carlots, horticultural and poultry.

Philadelphia: Demand and supply fair; $2.95, f.o.b. pier.

Boston: Demand and supply steady; $3@3.10 bale.

Chicago: Demand good; supply ample; $3.75@3.85 standard 7½ cu. ft. bale.

New Orleans: Demand good; trend steady; supply ample; standard bale, German moss $3.15@3.45 dock.

Portland: Demand slow; supply ample; trend unchanged; $3.15.

PEANUT OIL MEAL

Atlanta: Demand slow; trend steady; supply limited; 45% $65, sacked, immediate.

Milwaukee: Demand and supply fair; 26% $47.

POTASSIUM IODIDE, U.S.P.

St. Louis: Demand fair; trend steady; supply ample; 100% pure potassium U.S.P., 250-lb. average in drums $1.90, 100-lb. lots in fiber drums $1.92; 90% potassium iodide calcium stearate mixture, 225-lb. lots in leverpak drums $1.81, 100-lb. lots in fiber drums $1.85.

New York: Trend steady; granular or crystals $1.80½ lb. in 250-lb. drums, $1.92 lb. in 100-lb. drums, $1.95 lb. in 25-lb. drums; 90% KI in calcium stearate or carbonate mixtures, $1.81 lb. in 250-lb. drums or 200-lb. lots, $1.83 lb. in 100-lb. drums, $1.96 lb. in 25-lb. drums; f.o.b. New York, New Jersey or Pennsylvania; freight allowed to destination on 100-lb. drums or larger packings.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gram in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Memphis: Demand good; trend steady; nothing offered; bran $37, sacked, f.o.b. Arkansas points.

Atlanta: Demand fair; trend strong; supply limited; bran $51, sacked, immediate.

New Orleans: Demand slow; trend firm; supply adequate; bran $38@40, Louisiana mills.

Ft. Worth: Demand slow; supply moderate; carlots, rice bran $38@39, prompt shipment, f.o.b. south Texas rice mills; hulls $4@5, f.o.b. mills.

Los Angeles: Demand good; trend steady; supply light; bran $55.61.

SCREENINGS

Minneapolis: Market about unchanged, with Canadian supplies somewhat short to keep up with deliveries and future delivery interest light. Quotations: country run $20@30, lights $12@22, mediums $23@32, heavies $33@42; Canadian $19, Canadian ground $30; flax screenings $25@28.

Chicago: Demand fair; supply plentiful; ground grain screenings $30; Canadian, bulk $24.

Buffalo: Demand and supply fair; trend higher; ground, sacked $34, New York; unground, bulk $27, New York.

Cincinnati: Demand fair; trend steady; supply fair; Canadian $30; barley $26@34.

New Orleans: Demand fair; trend firm; supply limited; 3/64 in. grind $40.20@42.20.

Denver: Demand fair; trend steady; supply ample; ground grain $41.

Ft. Worth: Demand good; supply limited; 12% protein ground $42.50, sacked, delivered Ft. Worth, last half December.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $18.85@19.10.
Buffalo: $23.65@23.90.
Chicago: $23.10@23.35.
Cincinnati: $21.80@22.
Des Moines: $23.60@23.85.
Kansas City: $23.20@23.45.
Memphis: $20.50@20.70.
Minneapolis: $24.25@25.55.
Philadelphia: $22.65@22.90.
St. Louis: $22.50@22.75.
Tampa: $18@18.20.
Toronto: $27.50@27.80.

SORGHUMS

Ft. Worth: Demand poor; supply sufficient; carlots, bulk, No. 2 yellow milo $2.43@2.45, delivered, Texas common points.

Cincinnati: Demand fair; trend steady; supply adequate; $3.

Los Angeles: Demand fair; trend steady; supply ample; No. 2 milo, delivered CCP, prompt $2.96.

SOYBEAN OIL MEAL

Ft. Worth: Demand fair; supply sufficient; carlots, 44% $68.50@70, depending on origin, December; truck loads $65@66.

Cincinnati: Demand fair; trend steady; supply adequate; $47, bulk, Decatur.

Los Angeles: Demand slow; trend stronger; smaller offers; delivered CCP $76.94@77.94.

Ogden: Supply average; $35@90.

Portland: Demand slow; trend lower; supply ample; December $42, March $40.

New Orleans: Demand good; trend higher; supply ample; 49% sacked $69.50@71.50.

Boston: Demand good; supply ample; $45.50, f.o.b. Decatur.

Milwaukee: Demand good; supply fair; $46, bulk, Decatur.

Louisville: Demand fair; trend stronger; supply ample; $58.50 ton.

Atlanta: Demand fair; trend steady; supply ample; 44% $64.75, sacked, immediate.

Chicago: Soybean oil meal was traded on a day-to-day basis during the week ending Dec. 12. The market was steady to higher, with demand for nearby fairly good. Interest in future shipments was dull. Quotations: 44% soybean oil meal $57@57.50.

Decatur: Demand fair; supply good; 44% bulk, unrestricted $47@47.50.

Minneapolis: Prices showed some strength earlier as nearby supplies are limited, but values were back to last week's levels by the end of the period. Quotations: $43, bulk, Decatur.

Kansas City: Demand fair; trend steady to lower; supply adequate with some tightness in nearby stocks; $46.50@47, bulk, Decatur, for Kansas City and western shipment in December, $45.50 for forward months, $47.50 unrestricted.

Wichita: Demand good; supply sufficient; 44% $64.50, 50% $72.50, f.o.b. Wichita.

Philadelphia: Demand spotty; supply ample; $45.50, bulk, Decatur.

Memphis: Demand fair; trend easier; supply ample; prime 44% solvent $55.50, sacked, f.o.b. Memphis.

Omaha: Demand good; supply adequate; 44% solvent $62, pellets $64.50; 41% expeller $69.

Denver: Demand fair; trend some stronger; supply tightening; $70.

Seattle: Demand fair; trend steady; supply good; $76.50 ton, delivered, sacked, carlots, December shipment.

SUNFLOWER SEED

St. Louis: Demand fair; trend steady; supply ample; black—large $15.50 cwt., medium $14 cwt., small $10.50 cwt.; gray—large $16 cwt., medium $14.50 cwt., small $10.50 cwt.

TANKAGE

Wichita: Demand fair; supply ample; 60% $77.50, f.o.b. plant.

Ft. Worth: Demand and supply light; 60% digester $76@78, f.o.b. Ft. Worth.

St. Louis: Demand fair; trend steady; supply ample; 60% $79@81 ton bulk, $84@86 ton in paper sacks, $83@85 ton in burlap sacks.

St. Paul: Market softer at $70@71 for 60% digester.

Chicago: Demand and supply fair; 60% protein $70@77.50.

Louisville: Demand dull; trend firm; supply ample; $72.50@77.50 ton.

Kansas City: Demand good; trend weaker; supply ample; 60% digester $72.50@73, sacked.

Cincinnati: Demand fair; trend steady; supply adequate; 60% digester $70@76.50.

New Orleans: Demand fair; trend steady; supply ample; 60% $85@87.50.

Omaha: Demand slow; supply ample; $77.50.

WHEAT GERM MEAL

New Orleans: Demand fair; trend steady; supply adequate; $63@65 cottons.

Chicago: Market off $1 to $61.

Buffalo: Demand and supply fair; trend lower; commercial grade $63, sacked, f.o.b. Buffalo.

CORN VOTE

(Continued from page 1)

USDA's top policy officials into a series of huddles to devise plans to meet conditions which the referendum results have created. Top USDA officials told this reporter that when such recommendations are formulated, the final judgment will have to be made at cabinet level.

It is expected that compliance with the acreage allotments, totaling 37 million acres, will be limited, and that the large supply of corn will be at low prices.

The prospective situation is seen as a direct effect of a drive put on by the National Farmers Union to defeat the base acreage alternative for corn under provisions of the soil bank act. While that group has won a victory, it may be one at great cost if the forecasts of dollar corn next year come true. This dollar corn must not be discounted if there is no new legislation by the 85th Congress when it convenes in January.

USDA officials say the predicted price slide not only will affect corn but will drag other feed grain prices down, too.

Daily huddles have been going on in USDA every day since the referendum results were made known. Not the least among the considerations are those political. It is pointed out that although the corn soil bank proposal was defeated, a substantial number of Corn Belt farmers favored

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the soil bank alternative—approximately 62% of those voting. The defeat was accomplished by the heavy adverse vote in such states as the Dakotas, Minnesota and Nebraska—where the Farmers Union has its concentrated strength. Political connotations are major items of discussion, and USDA is searching for a formula wherein it can retrieve some method to curtail production of corn next year but at the same time grant some protection to its followers in support of the soil bank in the major Corn Belt.

Acting independently to save the Corn Belt farmer now is Sen. Hubert Humphrey (D., Minn.), who urged farmers to defeat the soil bank referendum alternative. Sen. Humphrey is now proposing that Congress re-enact the provisions of the soil bank which were applicable only for the 1956 corn year crop, which would fix an acreage base of 49 million acres and require as a condition of eligibility for price support and soil bank that 15% of this land be withdrawn from production.

This seems like the most direct approach, but it misses one target of the soil bank—in fact, its major purpose, to make the soil bank an instrument to reduce production as USDA acts vigorously to dispose of the huge corn surplus. Supply-demand conditions clearly indicate that the 1957 crop acreage should be reduced to a 37 million acre level if production is to be brought into bounds.

Entire Program Affected

However, the corn aspect of this confusion is but one facet of an overall issue—an issue which threatens to spill the soil bank completely.

Under the soil bank act, it is necessary for all the acreage allotment crop farmers who wish to participate in the soil bank for 1957-58-59 to comply with all acreage allotments on crops on their farm if they wish to obtain soil bank acreage reserve payments on any one crop from soil bank programs.

This means that for wheat-corn farms, there is now grave doubt that any of the wheat soil bank acreage reserve contracts will be honored, since USDA officials are deeply pessimistic that the corn farmer will care to reduce his acreage from the deeply cut national corn acreage allotment of 37 million which will now be available under the results of the corn referendum. Few, if any, at USDA believe that either the wheat-corn or cotton-corn farmer already laboring under deep acreage cuts on one crop will cut back his share of the 37 million corn base.

This clearly means that for wheat soil bank operations for 1957, many previously signed wheat contracts with the soil bank will be invalidated, and to a lesser degree the same condition will apply for cotton. Sign-ups for cotton soil bank contributions for the 1957 crop are believed too small at this time, but the same condition continues and certainly the new situation does not encourage cotton farmer participation where corn is grown on the same farm.

Feed Grain Price Break

Unless Congress acts to correct this condition—and it is doubted that USDA can find any administrative avenue of escape—the corn referendum result may be an effective torpedo to the soil bank and the blow which broke the feed grain market and ultimately will lead it into lower ground for a long, steady decline running possibly as long as two years. It seems that a bull on feed grains will have to be made of sturdy stuff henceforth.

In the meantime, USDA is now trying to find a way to sell at least 200 million bushels of corn, preferably from Illinois storage points, before the take-over of 1956 corn crop defaults. Here again USDA officials are huddling, seeking an effective policy decision.

While there is no present indication that USDA will depart from its current daily acceptance of bids, the Chicago regional CCC office is said to have urged headquarters here to go back to the old sales method and to put its stocks on the table each day after markets close on an open price basis. This proposal has some following in export trade circles.

REPORT QUESTIONED

(Continued from page 6)

that properly controlled withdrawal will prevent a drop in production below the normal expected production of the cow, had she not been fed thyroprotein.

Limited Number of Cows

"The USDA data and interpretations are not the result of large scale field applications but of work with only five groups totaling 55 cows at three different locations. The very limited number of cows considered in the USDA work coupled with some abrupt and abnormal changes in control group rate of decline has caused their conclusions to be questioned by other well informed workers in the field. In fact, if normal rates of decline of both the control and thyroprotein fed groups are properly extrapolated, the USDA data are in agreement with the work of Turner and of Swanson.

"USDA points out that thyroprotein might be used to advantage by the commercial dairyman. Thyroprotein is certainly not for every dairyman at this stage of application. Good feeding and good management are required to realize the potential of thyroprotein, but under these conditions, the dairyman can achieve a substantial increase in his profits by its use."

CHICAGO BOARD

(Continued from page 4)

vice president of Continental Grain Co., and William J. Walton, assistant secretary and treasurer of General Mills, Inc.

Five men were nominated for two-year terms as members of the committee of appeals. They were Raymond M. Gerstenberg of Gerstenberg & Co.; John G. McCarthy, Jr. with John G. McCarthy Co.; S. A. McMurray, with Merrill Lynch, Pierce, Fenner & Beane; James S. Templeton, vice president, Santa Fe Elevator Corp.; and Frederick G. Uhlmann, assistant treasurer, Uhlmann Grain Co.

Nominated for two-year terms on the committee of arbitration were Ray C. Feurhaken, Jr., broker; John L. Georgas, General Mills, Inc.; Arthur Mark, Irving Weis & Co.; Robert L. Martin, assistant secretary, J. & O. Grain Co., and Edward C. Wilson, Jr., broker.

The annual election will be Jan. 21.

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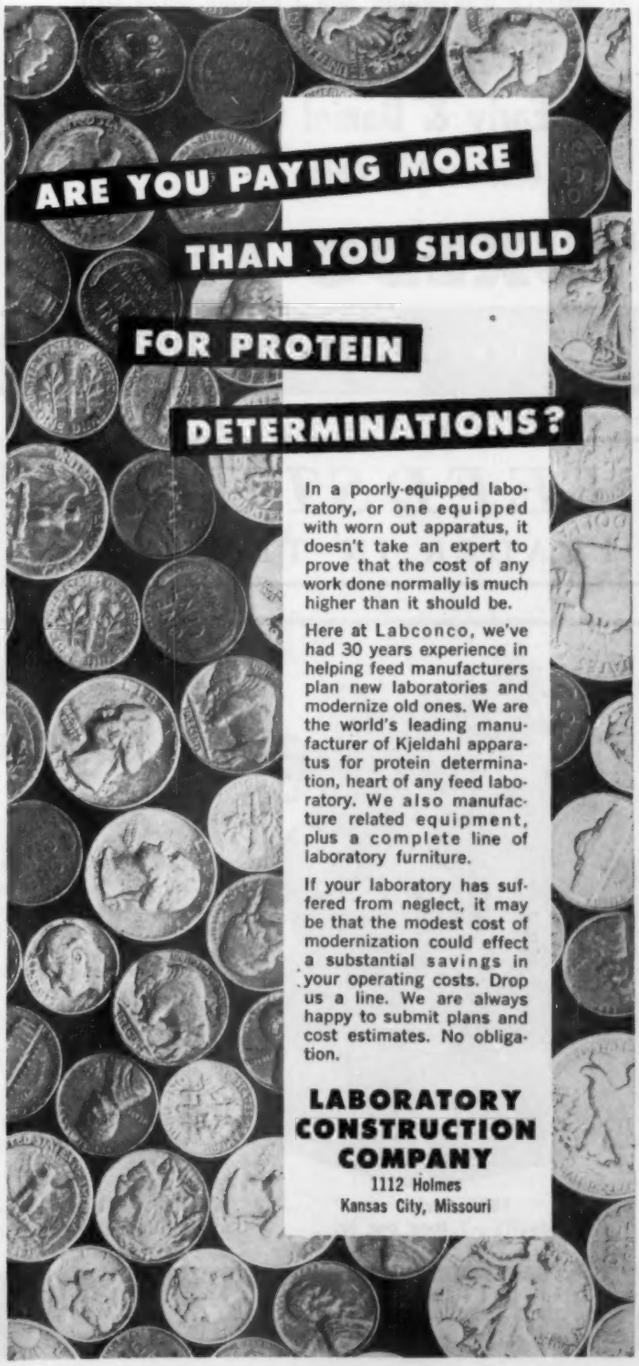

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USDA REPORT

(Continued from page 6)

was reduced for cows giving average or poor responses.

From the results of the tests, the scientists said that any practical value thyroprotein might have would be limited to its use in large commercial herds. In such herds, they said, it might be used as a means of stimulating milk output during periods of normally low production when milk prices are high and when production bases are being established.

The USDA-Montana cooperative tests were made with 55 cows divided into five groups, and a control group of 17 cows. The experimental period included 30 days of pre-treatment, 60 days of treatment with thyroprotein added to the feed, a zero-to-30-day withdrawal period, and 60 days of post-treatment, after the drug was withdrawn.

"During the first 60 days of thyroprotein use, there was an average daily increase of 6 lb. (15%) in milk, but no change in butterfat tests," USDA said. "A significant milk increase did not develop in all groups receiving the drug.

"Withdrawal of thyroprotein after 60 days began with abrupt removal in some groups and removal within 10, 20 and 30 days in others. Withdrawal over the longest period resulted in a more gradual decline in production but did not prevent the usual sharp drop once the drug was completely removed.

"Production decreased in all treated groups following complete removal of the drug and remained below anticipated yields and below output of cows that received no drug treatment.

"In two out of three tests, feed efficiency for milk production was similar for treated and untreated groups when the periods during and after thyroprotein feeding were considered together."

MARKETS

(Continued from page 2)

pected next week. One spokesman said there were only two sellers last week—egg mashes and dairy feeds. Dairy feed demand is coming along pretty good. Broiler feed sales were none too good, and turkey feeds are at a low point.

Ingredient prices were irregular, with major grains easing a little. Alfalfa meal held steady. Brewers' grains were unchanged but distillers' grains were off 50¢. Gluten feed was unchanged and hominy was down 50¢. Soybean oil meal declined 50¢@$1. Gluten meal and linseed oil meal were unchanged. Cottonseed oil meal advanced 50¢@$1. Meat scraps and tankage were unchanged, but fish meal advanced $1@2.

Running time of formula feed manufacturers averaged 40 hours last week.

Pacific Northwest

The formula feed business was rather quiet and promises to remain so until after the turn of the year, at least, as traders and feed formulators are thinking more about the holidays than they are about the feed business.

Feed prices were steady during the week, and volume was fairly good in view of the low level of end product prices. Broiler prices continued to give grave concern to formulators of that type of feed, and the volume is shrinking steadily. Laying rations are moving out at a steady pace, and the producers of eggs are doing quite well.

Dairymen report that while the price they receive for milk leaves something to be desired, nevertheless, feed prices are not as high as they have been in some recent years, and there is a good supply of hay available at what is considered a fair price. Thus, over-all feed business is steady and without feature.

Millfeed continued firm in the face of good California demand, especially for quick shipment material, and shippers were having a hard time keeping up with delivery instructions. All other ingredients were in good supply and trading at current asking levels or slightly below, with sellers leaning heavily against the market in an effort to move supplies of all types.

Ohio Valley

Formula feed sales continued steady this week in the Ohio Valley, and manufacturers believe the outlook is encouraging for a steady uptrend in volume, especially if there is a continuance of the severe winter weather which prevailed in this area during the early days of this month. In view of the present necessity for indoor feeding of all farm animals, it is expected farmers will be stocking up on formula feeds next week to meet their requirements over the approaching holiday period.

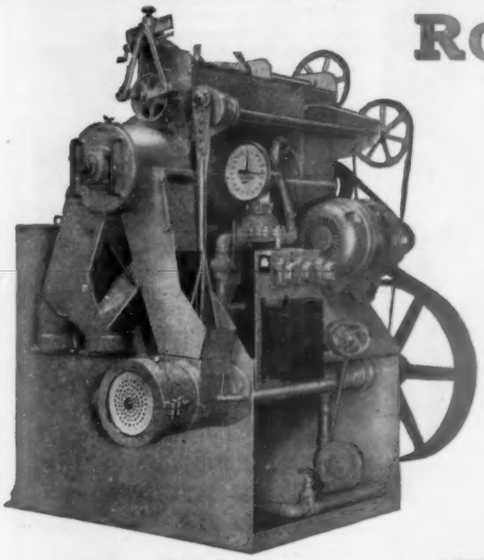
Dairy and hog feeds currently are in good demand, and with placements of baby chicks on valley farms reported in increasing numbers, sales of chick starters and broiler feeds should improve considerably during the weeks ahead. Turkey flocks also are being replenished now with a considerable number of poults, indicating a gradual build-up in demand for turkey feeds.

Formula feed prices were steady to up 25¢ ton this week, while operations at area mills were generally on a five-day basis, with second shifts being required at a number of plants.

Mountain States

The formula feed business has moved along at a fairly even pace for the past week—still good in most all phases. Broilers and layers are not a big factor in this area, but are strong compared to the average.

Fluctuations in prices of ingredients are having some effect on formulation. Molasses is priced to the point of lowering consumption, and



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alfalfa meal, too, is high enough to have slowed sales.

All in all, feed sales are good and seem to be at a consistent level.

Central States

Feed sales continued about level with the previous period during the week ending Dec. 12 in the central states. This was considered a fairly cheerful report by most feed manufacturers, since the pickup in business noted in the first week carried over into the present one. Business, observers say, is now up to about normal for December. Order backlogs range to three days.

Prices for the week were about steady, although some slight easing was apparent near the close of the period. A few ingredients cost less. With this situation, there was little encouragement for dealers and feeders to stock up, and most customers appeared to be buying what they needed right away. The outlook is for sales to decline toward the end of the month, since the seasonal pattern is for a reduction of inventories and a fall-off in ordering around the holidays.

Southeast

Feeding operations have held about steady in the Southeast this week. Mill running time has remained unchanged for the most part. Buying by feed manufacturers has been on the slow side as they are fairly well covered on needs for the balance of the calendar year and they desire to reduce inventories to a minimum in order to avoid floor stock taxes.

Shell corn continues to move well, and supplies are reported to be dwindling. Prices have been advanced by some buyers trying to draw out additional supplies from the farm. Ground snapped corn has not been the factor this year that it was last year due to higher prices and limited amount of yellow corn available for making the ground snapped product.

Citrus pulp production is on the upswing, with concentrate plants coming into production in Florida. This will increase the supply of raw materials for the citrus pulp plants. Citrus pulp and citrus molasses are in good demand, and new crop buying has been good on both.

The broiler markets have been about steady, with baby chick placements still large in the North Carolina broiler section. Dairy and hog feeds have been practically unchanged, with this business more on the slow side.

Cottonseed hulls are moving better in this territory, and supplies are limited. Ground cob and shucks are also in fair demand. Fish meal offerings have picked up and prices from some producers are lower.

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